Towards a Comprehensive Model of Obsessive Compulsive Disorder: an Examination of Early Experience, Personality Style and Schemata

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I, the undersigned completed the work presented herein. I certify that this work is my own.

Signed:

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ABSTRACT

Salkovskis' cognitive model of obsessive compulsive disorder (OCD, 1985) has led to a wealth of research which has identified a number of cognitive vulnerabilities thought to be characteristic of the disorder. Schemata related to responsibility, guilt, faulty meta-cognitive beliefs, thought action fusion and the appropriateness of neutralisation have been associated with OCD symptomatology. However, the majority of research has used non-clinical subjects, with varying criteria and methodology, leading to problems in interpreting the results. More recent work (Sookman et al, 1994) has attempted to develop a multidimensional model of OCD. The emphasis is on addressing early attachment experience to examine the possible aetiology of core schemata. Subsequent research has not reflected the need to develop this comprehensive approach to our understanding of OCD: cognitive theorists have continued to examine cognitive schemata in isolation; separate research has addressed personality factors such as perfectionism; a third vein has examined OCD patients' reports of parenting. In the current paper, 20 subjects with a diagnosis of OCD and an anxious control group of 20 subjects are compared on a number of measures, aimed at examining i) OCD related schemata (Inventory of Beliefs Related to Obsessions, Freeston et al 1993), ii) experience of parenting (Parental Bonding Instrument, Parker et al, 1979) and iii) the fundamental personality dimensions of sociotropy and autonomy (Personal Style Inventory, Robins et al, 1994). The paper compares scores on these measures between experimental and control groups to examine OCD specificity and confirm the unique role of particular schemata in a clinical OCD group. The relationship between early experience, cognitive vulnerability and OCD symptomatology is examined in an attempt to incorporate these factors into a comprehensive account of OCD which links early experience to OCD through the mediating influence of dysfunctional assumptions and cognitive vulnerabilities.

INTRODUCTION

The development of cognitive theories and treatments of Obsessive Compulsive Disorder (OCD) had been slow in comparison to advances in understanding and treatment of other anxiety disorders. Various authors expressed surprise at this underdevelopment of ideas, particularly in view of the recent rise of cognitive therapy for mood and anxiety disorders (Salkovskis, 1985; Van Oppen & Arntz, 1994). The slow development of cognitive accounts of OCD is even more remarkable given that cognitions play an obvious and crucial role in the disorder in terms of the obsessional thought. Salkovskis (1985) argued that "obsessional thinking is the archetypal example of a cognitive disorder in the neuroses" (p 571). His proposed cognitive model led to a wealth of research into cognitive theory and treatment of OCD.

The current paper will begin by examining early cognitive accounts of OCD before looking at Salkovskis' model in detail. Experimental studies aimed at validating and developing this model will then be reviewed, which will include a critical examination of the dominant methodology of employing non-clinical participants in OCD research. More recent work on cognitive treatment for OCD will be examined to highlight the practical application and efficacy of cognitive techniques in OCD. The final section of the introduction will focus on the need to address early experience and its relevance to OCD in terms of the development of cognitive vulnerabilities. The hypotheses and aims of the current study will be developed from the literature review.

Early Cognitive Models of OCD

In his development of cognitive models of depression and anxiety disorders, Beck (1976) did propose a cognitive account of OCD. His explanation pointed to the role of thoughts of danger in terms of warning or doubt. As these thoughts are common in other anxiety disorders, Beck differentiated OCD by stating that "the thoughts differ from those of the anxiety neurotic in that they are concerned with an action the patient believes he should have taken or an action he should not have taken" (Beck, 1976, p 88). Compulsions were

regarded as an attempt through action, to allay the obsessional thoughts and doubts. Beck did not develop the model further and thus provided only a very limited account of OCD.

Carr (1974) had previously developed a fuller cognitive model of OCD. He drew on Lazarus' (1966) work on threat appraisal, which postulated that an individual's evaluation of a situation will be in terms of its harmful implications. Carr's main hypothesis therefore was that "the compulsive neurotic *always* makes an abnormally high subjective estimate of the probability of the undesired outcome" (Carr, 1974, p 316). This idea was seen to be supported by findings that compared to other psychiatric groups, obsessive compulsive patients were more cautious in terms of risk-taking activities (Steiner, 1972). The model also identified the presence of high subjective cost of a feared event. This high subjective cost was felt to be situation specific and not higher than in non-obsessive compulsives. However, it had significance due to the interaction with the pre-existing high subjective probability of outcome. It was further argued that because the "compulsive neurotic" *always* made abnormally high subjective estimates of the probability of the undesired outcome, all potentially harmful situations would generate a high level of threat with subsequent anxiety. Compulsions were explained as threat reducing activities which lowered the subjective probability of outcome and were reinforced by the reduction of anxiety and their 'success' in averting the unfortunate outcome. While the model is important in terms of addressing cognitive explanations of OCD for the first time, it failed to provide sufficient evidence to support its proposals. It also failed to explain why obsessive compulsive patients had the high subjective estimate of the cost and probability of unfavourable events.

McFall & Wollersheim (1979) developed a subsequent model of OCD based on the work of Lazarus (1966) and Carr's model (1974). Their model emphasised "deficits" in primary and secondary appraisals as well as suggesting unrealistic beliefs which negatively influenced these appraisals. The primary appraisal made in response to threat was said to involve an estimation of danger of an event, relative to the person's perceived ability to cope with it. The beliefs proposed as associated with this appraisal were i) one should be perfect, ii) making mistakes results in punishment or condemnation, iii) one is powerful

enough to initiate or prevent the occurrence of disastrous outcomes, and iv) certain thoughts and feelings are unacceptable and could lead to a catastrophe. The primary appraisals would result in an increase in anxiety and the obsessive compulsive behaviour developed due to the secondary appraisal made of the likely consequences of efforts to cope with the threat. These secondary appraisals would be influenced by the beliefs that i) if something is or may be dangerous, one should be terribly upset by it, ii) magical rituals in obsessive ruminating will circumvent feared outcomes, iii) it is easier and more effective to carry out a magical ritual than it is to confront one's feelings/thoughts directly and iv) feelings of uncertainty and loss of control are intolerable, should make one afraid and something must be done about them. As a result of these beliefs, the obsessional patients saw themselves as helpless to cope with the perceived threat and the compulsive behaviour would be carried out to prevent the undesired event. It was hypothesised that the distressing compulsions were viewed as more tolerable than the feelings of guilt which were related to the initial intrusive thought.

Although the model expands on Carr's (1974) work, particularly in its attempt to identify specific unreasonable or faulty beliefs associated with the primary and secondary appraisals, it has been quite heavily criticised by Salkovskis (1985). He viewed the model as attempting the perhaps too difficult task of "bridging the gap" between behavioural and psychoanalytic theory. Salkovskis was clearly uncomfortable with the model's dependence on pre-conscious and unconscious cognitions, despite them being said to be 'closer to the individual's awareness' than would be in psychoanalytic theory. He also criticised the absence of differentiation between the negatively influenced threat appraisals of the obsessionals and other anxious patients. Salkovskis questioned the benefits of developing psychodynamic concepts when their use in the treatment of OCD has been poor (Cawley, 1974).

Salkovskis' Model of OCD.

Salkovskis (1985) proposed his own cognitive model of OCD based on Beck's cognitive theories. His account drew together research carried out in OCD to that time, as well as

using case examples to highlight and support aspects of the model. The model has now become widely accepted and has generated a dramatic increase in the amount of research published on the cognitive theory and treatment of OCD.

Numerous studies had shown that negative intrusive thoughts are experienced by the majority (84 - 99%) of non-clinical individuals (Rachman & de Silva, 1978; Niler & Beck, 1989; Freeston, Ladouceur, Thibodeau & Gagnon, 1991). Salkovskis & Harrison's (1984) replication of the first study of the incidence of intrusive thoughts in a normal population (Rachman & de Silva, 1978) found that 88.2% of a sample (n = 178) reported experiencing obsessional thoughts and impulses. This compared to 79.8% in Rachman & de Silva's original study. While various methodologies have been used, the consistently high percentages reported and the comparable results from close replication of studies indicate the relative 'normality' of experiencing intrusive thoughts and images. A more recent study has shown that compulsive behaviours are also common in the normal population (Muris, Merckebach & Clavan, 1997). Because of the high incidence of intrusive thoughts in the normal population, a significant factor needed to be found to account for the development of obsessional and compulsive problems to clinically significant levels in some individuals.

Salkovskis (1985) argued that cognitive intrusions in clinical obsessionals and non-clinical populations are essentially similar in content, but are *processed* in a different way. Thoughts that have no particular salience (in terms of personal implications) will not be processed further, whereas salient intrusions will receive further processing, such as evaluation of the thought and appraisals of harm. His account of OCD is based on the fundamental distinction between obsessional or intrusive thoughts and negative automatic thoughts. Rachman (1981) defines intrusive thoughts as "repetitive thoughts, images or impulses that are unacceptable and /or unwanted" (p 89). He goes on to propose necessary conditions for a thought to be intrusive: "the subjective report that it is interrupting an ongoing activity; the thought, image or impulse is attributed to an internal origin and is difficult to control." The negative automatic thoughts, in contrast are "elicited by stimuli (actual external events or thoughts about events)" and are "plausible or reasonable,

although they may have seemed far fetched to somebody else. The patients accepted their validity without question and without testing out their reality or logic" (Beck, 1976, p 36.)

Salkovskis (1985) proposed that the properties of intrusive thoughts and negative automatic thoughts differ in nine main characteristics. The most significant differences are said to lie in perceived intrusiveness, accessibility of consciousness (intrusive thoughts being more accessible) and the extent to which the thought is congruent with the individual's belief system. Salkovskis employs the terms "ego syntonic" and "ego dystonic" to differentiate between this congruence or incongruence with the belief system, stating that "obsessions are incongruent with the individual's belief system [ego dystonic] unlike negative automatic thoughts which are an expression of it" [ego syntonic] (p 573). This distinction forms one of the major components of his cognitive theory.

Salkovskis argued that the obsessional thought acts as a stimulus which elicits negative automatic thoughts through interaction between the intrusion and the individual's belief system or schemata. The negative automatic thoughts were hypothesised to be related to ideas of responsibility, both for causing harm to self or others as well as possible ideas of responsibility for having had the thought itself. Thus responsibility is linked both to the content and the occurrence of a distressing, ego dystonic thought. Neutralisation, either as an overt compulsion or covert cognitive ritual is therefore understood as an attempt to reduce personal responsibility, to avoid being blamed by self or others and to "put things right". Reassurance seeking is understood in terms of the model as an attempt to share responsibility with others.

Salkovskis later attempted to clarify the concepts of responsibility and neutralisation. The importance of 'pivotal power' in responsibility was stressed. Responsibility is defined as "the belief that one has power which is pivotal to bring about or prevent subjectively crucial negative outcomes. The outcomes may be actual, that is, having consequences in the real world, and/or at a moral level." (Salkovskis, Rachman, Ladouceur & Freeston, 1992, cited by Salkovskis, Richards & Forrester, 1995, p 285). Neutralising is defined as "voluntarily initiated and conducted activity which is intended to have the effect of

reducing the perceived level of responsibility" (Salkovskis et al, 1995, p 285). The compulsive behaviour or neutralising activity is negatively reinforced by a reduction in anxiety/distress, and therefore increases the probability of subsequent neutralising as an 'effective' coping strategy. Salkovskis also argued that as the neutralisation is consistently followed by the absence of the expected punishment, which is a powerful reinforcer, the perceived validity of the beliefs will increase. The example given is "I acted on my belief and felt better, therefore the belief must have some basis in truth." More recently, Salkovskis et al (1995) suggested that behaviours such as neutralising can also serve to increase the sense of responsibility. If someone accepts that they can prevent harm, then perceived responsibility may be increased, for if one can influence an event, some responsibility for the possible outcomes must be assumed; "so by acting to reduce responsibility, one implicitly accepts the implication of being responsible in the first place" (Salkovskis et al, 1995, p 288).

Salkovskis, Westbrook, Davis, Jeavons & Gledhill (1997) recently examined the role of neutralisation in the aetiology of OCD. The study used non-clinical participants who were screened for intrusive thoughts, and only personally relevant intrusive thoughts were used in the experiment. The study was based on evidence that attempts to suppress unwanted thoughts in the normal population often produce a paradoxical increase in the frequency of these thoughts (Salkovskis & Campbell, 1994; Trinder & Salkovskis, 1994; Wegner, Schneider, Carter & White, 1987; Lavy & van den Hout, 1990). They found that when participants were asked to neutralise intrusive thoughts, more discomfort was associated with subsequent presentation of the same thoughts compared to participants asked to use a distraction strategy. This discomfort was also accompanied by a greater urge to neutralise and distract and actually increased participants' reports of their rate of neutralising (contrary to experimental instructions). It was noted that participants asked to neutralise did experience a reduction in self-reported anxiety after the first presentation of the intrusive thoughts. Clearly, the participants would not have been aware that this short term 'benefit' would then result in a dramatic increase in anxiety and discomfort after a delay. The authors concluded that neutralising should be viewed as a self-perpetuating

mechanism in obsessionals which serves to maintain the obsessional/compulsive behaviours.

Finally, Salkovskis' model addressed the importance of dysfunctional schemata in the development and maintenance of OCD. In his development of the cognitive model of depression, Beck (1967) examined the role of self concepts or schemata. He proposed that individuals form concepts from their experiences, and the attitudes and opinions communicated to them by others. Some of these concepts or attitudes are said to "deviate from reality and produce vulnerability to possible psychological disorders" (Beck, 1967, p 275). Beck argued that unless extinguished, these concepts became 'structuralised' as a permanent formation in cognitive organisation. This cognitive structure or schema remains permanently with the individual, even though it may be dormant. A schema is defined by Beck as " a structure for screening, coding and evaluating the stimuli that impinge on the organism" (Beck, 1967, p 283). Safran, Seagal, Hill & Whiffen (1990) described schemata as "pre-existing memory representations which are employed in a constructive fashion during retrieval but also impose their own structure on new information" (Safran et al, 1990, p 144). Salkovskis' model examined schemata in terms of Beck's concept of dysfunctional assumptions (Beck, 1976). Salkovskis listed a number of assumptions likely to be operating in OCD, including i) having a thought about an action is like performing the action, ii) failing to prevent (or failing to try to prevent) harm to self or others is the same as having caused the harm in the first place, and iii) one should and can exercise control over one's thoughts. He stresses that the assumptions are likely to vary considerably but that through interaction with the intrusive thoughts, the dysfunctional assumptions will produce negative automatic thoughts related to blame, threat and loss. Salkovskis did not expand on how these dysfunctional assumptions relevant to OCD are developed.

Salkovskis went on to explain that if the negative automatic thoughts resulting from the obsessional thought do not involve themes of responsibility or blame, then not only is neutralisation very unlikely to occur, but the negative automatic thoughts would be likely to lead to increases in anxiety or depression. Van Oppen & Arntz (1994) developed an

interesting matrix which incorporates current understanding of anxiety, depression and obsessive compulsive problems to delineate them clearly. The matrix has dimensions of danger and responsibility. Danger is split into past or future event, and responsibility is divided into either high or low responsibility for an act or event. The different matrix dimensions allow comparison of conditions such as OCD, anxiety and depression, while at the same time highlighting the important differences between them (see Figure 1). Thus, both OCD and depression are similar in terms of the responsibility dimension but differ in terms of past and future events. Similarly, anxiety and OCD both relate to future 'catastrophe' but differ in terms of level of perceived responsibility.

	catastrophe in the past	**catastrophe in the future**
high responsibility	low self esteem guilt depression	OCD
low responsibility	resentment	anxiety phobias

Figure 1: OCD compared with other anxiety disorders and depression, taken from Van Oppen & Arntz (1994)

Salkovskis' model (1985) prompted a wealth of research, both attempting to find support for the model as well as to develop it further. The following section reviews experimental studies to explain current understanding of obsessive compulsive problems.

Experimental Studies on the Role of Responsibility in OCD

The role of responsibility in OCD now appears to be widely accepted. In 1980, Rachman & Hodgson noted that stimuli that would normally have caused distress and compulsions in patients with OCD did not lead to checking rituals in the presence of an experimenter. The explanation of this phenomenon was that the responsibility had been shared with the experimenter, thus removing the sense of responsibility and subsequent discomfort from the obsessive compulsive individual. This finding is similar to the behaviour Rachman (1993) reported in relation to obsessional patients when admitted to psychiatric hospitals. He observed that on admission, patients displayed little or none of their compulsive

behaviours. It was only when they became accustomed to the ward that the behaviour began to re-emerge. Rachman interpreted this as the patients gradually developing an association or affiliation with the ward and its routine, which then led to the development of a "sense of responsibility for its management and security" (Rachman, 1993, p 150). He argued that people with OCD experience "little or no responsibility in the homes or workplace of *other* people. They feel responsible within their own psychological territory." (Rachman, 1993, p 150).

Although providing interesting interpretations of observations, these studies did not empirically examine the role of responsibility in OCD. A series of studies with non-clinical and clinical groups have shown links between responsibility and OCD symptomatology (Freeston, Ladouceur, Gagnon & Thibodeau, 1992; Freeston, Ladouceur, Gagnon & Thibodeau, 1993; Salkovskis & Dent, 1989). Rachman, Thordarson, Shafran & Woody (1995) attempted to examine the significance of responsibility in OCD using the Responsibility Questionnaire (RAQ). Four factors emerged from the questionnaire: responsibility for harm; responsibility in social contexts; a positive outlook towards responsibility; and thought action fusion (TAF). Thought action fusion has been defined in two ways: the belief that thinking about a harmful act is morally equivalent to carrying out that act (TAF moral) and the belief that thinking about an event happening will increase the chances that it will actually happen (TAF likelihood). Correlations with obsessionality (measured by the Maudsley Obsessional Compulsive Inventory, Hodgson & Rachman, 1977) were only strongly significant for TAF. The authors concluded that people with OCD may not have a generally inflated sense or responsibility, but that the sense of responsibility may be situation specific. However, their use of non-clinical participants is problematic and this practice will be addressed in a later section. Furthermore, the cognitive model proposed by Salkovskis stresses that the intrusion, through interaction with the dysfunctional schemata causes negative automatic thoughts related to ideas of responsibility for harm. Rachman et al's (1995) study appears to have misinterpreted the concept of responsibility in OCD, as Salkovskis did not seem to have suggested that those with OCD have a *generally* inflated sense of responsibility per se.

Rheaume, Ladouceur, Freeston & Letarte, (1995) again using non-clinical participants, attempted to validate the new definition of responsibility in terms of pivotal power. Participants were asked to describe a possible negative outcome for 14 obsessive compulsive relevant situations like contamination, somatic concerns, loss of control and sexuality, which they rated in terms of probability, severity, influence and pivotal influence, and then perceived relevance and perceived responsibility. Only situations evaluated as very relevant were included in the analysis in an attempt to improve the validity of the study. Regression analysis suggested that influence and pivotal influence were the best predictors of responsibility ratings and better than probability or severity of outcome. A second study where the order of situations was changed also showed pivotal influence as the best predictor of responsibility. The authors concluded that the results provided support for Salkovskis' model of OCD in which pivotal influence (i.e. control over outcome) is the central responsibility schema in OCD patients. They further concluded that the tendency in OCD to overestimate the probability and severity of possible negative outcomes should be viewed as a separate schema: "general anxious threat", which may be necessary but not sufficient for the development of OCD.

Experimental manipulations of responsibility in both clinical and non-clinical groups is a method most recently employed. Ladouceur, Rheaume, Freeston, Aublet, Jean, Lachance, Langlois & De Pokomandy-Morin (1995), using a non-clinical group manipulated feelings of responsibility as either low or high by setting participants a task which the researcher either explained was of no importance/significance or highly important. The experimental description involved responsibility over changing the type of equipment at pedestrian crossings, to reduce the number of accidents. A manipulation check showed that the bogus information given to participants did result in the required level of perceived responsibility. The first study showed no differences in checking, number of errors made or the time taken to complete the task between the high and low responsibility groups. Only perceived anxiety showed significant differences. The experiment was repeated using a different manipulation which produced significantly stronger effects. On this occasion, the high responsibility group did show more hesitations and checking, while there was no difference in the time spent on the task or errors made. The authors

concluded that responsibility and compulsive like behaviour are linked. The use of behavioural measures to examine the effects of increased responsibility was a change from previous studies that have used self-report, and should provide more reliable results. However, the use of non-clinical participants again means that care should be taken in drawing firm conclusions about the role of responsibility in clinical levels of OCD.

Lopatka & Rachman (1995) improved on the previous study by employing clinical groups in their analysis. The choice of measurement however was self-report rather than behavioural. Participants (n = 30) all met DSM III-R criteria for OCD. The study used a within-subject repeated measures design with responsibility manipulated by either instructing the participant that *they* or the experimenter would accept full responsibility for any outcome or imperfection. The manipulation of perceived responsibility was judged to be effective from participant self-report. It was found that decreased perceived responsibility did result in decreases in reported discomfort and urge to check. There were further decreases in estimates of probability and severity of anticipated harm, perceived panic, and the likelihood and severity of anticipated criticism. Increased responsibility produced increases in discomfort and urge to check, but the results were not significant. The authors explained this by suggesting that participants' level of perceived responsibility may already have been high and therefore difficult to manipulate even higher. Two cognitive biases were also encountered. Firstly, perceived responsibility was not affected by the person's sense of control over the activity. Secondly, a decline in perceived responsibility was followed by a decline in the perceived probability of the event occurring. These biases seem to support the work on the role of pivotal influence in responsibility, so that even if the person has relatively little control over an event, the cognitive bias may maintain a high sense of responsibility. Pivotal influence therefore seems to mean that while the individual may have relatively little overall power, the small amount of power they have may be enough to 'tip the balance' in terms of feeling responsible. The authors also suggested that the confusion of responsibility and probability may be accentuated if the person feels pivotally responsible for preventing an undesired outcome.

The results of the studies discussed suggest that a heightened sense of responsibility and particularly pivotal influence, have a significant role in the maintenance of OCD. The following section will review studies which have examined other cognitive biases in OCD.

Evidence of Further Cognitive Biases in OCD

A series of studies conducted by Freeston and colleagues has uncovered a number of strategies used in response to intrusive thoughts and incorporated these into the cognitive account of OCD. Firstly, Freeston, Ladouceur, Thibodeau & Gagnon (1991) identified 3 styles employed in response to unacceptable intrusive thoughts. 125 non-clinical participants were asked to identify the types of intrusive thoughts/images they experienced using the Cognitive Intrusions Questionnaire (developed for the study). Cognitions related to: personal health; embarrassing or painful experiences; sexual behaviour; verbal aggression; and friends or family with a fatal disease or having an accident. Thoughts were then evaluated on 13 items such as frequency, disapproval and worry. Strategies used after experiencing the thought/image were then indicated (e.g. reassuring oneself, distraction, saying stop). The dominant response styles were identified as: no effortful response (26% of sample), attentive thinking (34%) and escape/avoidance (40%). The latter two strategies were associated with more anxiety and difficulty in removing the thought and were viewed by the authors as corresponding to neutralising activities in that they were intentional and effortful. Escape/avoidance strategies were also associated with more sadness, worry, guilt and disapproval than the no effortful response group. Intrusions eliciting escape/avoidance were evaluated as creating more disapproval than thoughts eliciting attentive thinking.

Freeston, Ladouceur & Gagnon (1992) found evidence that supported the role of responsibility in OCD but also linked responsibility to neutralising. The authors highlighted the association made between mood disturbance and intrusive thoughts in the cognitive model (Salkovskis, 1985). Mood was conceptualised as a predisposing factor which could increase the personal significance of intrusions, thus increasing the likelihood of further processing and the activation of dysfunctional assumptions. Non-clinical

participants, (n = 125) completed the Cognitive Intrusions Questionnaire (described earlier), as well as measures of depression, anxiety and compulsive behaviour. Five main factors were extracted from the dimensions of the thoughts on which participants reported. The factors were: "distress/severity " (worry, sadness, anticipatory fear, frequency and anticipated difficulty of removal); "evaluation" (responsibility, disapproval and guilt); "control" (ability to remove the thought and decrease discomfort); "diversity" and; "attention" (triggers, frequency). They found that dysphoria and anxiety were related to the 'distress/severity' factor. 'Evaluation' was the only factor that was a significant predictor of compulsive activity scores. 'Evaluation' was also associated with avoidance as a response to the thoughts and depression. The authors concluded that the results showed that depressed mood was associated with greater levels of negative evaluation of thoughts (consistent with Salkovskis' model). The 'evaluation' factor's relationship to depression scores was interpreted as an interplay between mood disturbance and the activation of dysfunctional assumptions. Salkovskis' model also seemed to be supported by the finding that effortful strategies such as escape, avoidance and attentive thinking were related to anxiety and depression scores.

In an extension of these studies, Freeston & Ladouceur (1993) examined the differences in response styles associated with appraisals of intrusive thoughts. Non-clinical participants and a mixed psychiatric group (total n = 885) participated in the study, which again used the Cognitive Intrusions Questionnaire as the principle measure. The study looked particularly at participants' appraisals of the probability that the unacceptable thought would become reality and their level of disapproval for the thought. The results supported their hypothesis that appraisals of probability and disapproval were related to different strategies. Perceptions of high probability of the undesired outcome and participants' low disapproval of the thought/image were associated with the use of attention strategies while low probability and high disapproval were associated with greater use of escape/avoidance strategies. They concluded that the results supported the distinction between ego dystonic intrusive thoughts about remote events found in obsessionals and the ego syntonic concerns found in worry. These results seem to follow the matrix proposed by Van Oppen & Arntz (1995) described earlier which differentiated OCD from other disorders such as

anxiety. The avoidance strategies were linked to compulsive/neutralising type behaviours while attention was linked to challenging negative automatic thoughts. The study also found that high disapproval and low probability were associated with more obsessive compulsive symptomatology, extreme beliefs about intrusive thoughts and levels of responsibility. The role of appraisals of probability and disapproval were concluded to be significant in the understanding of obsessional problems.

The importance of guilt in OCD was addressed by Niler & Beck (1989). The role of guilt in OCD, although not empirically examined previously, had been proposed. Rachman (1971) suggested that high moral standards would be likely to be involved in the aetiology of obsessional thoughts. Guilt is clearly related to appraisals of responsibility, in that it is likely to arise when there is a perception of responsibility and the judgment that one has behaved 'badly'. If one accepts responsibility for an event in which there has been a negative outcome, guilt is likely to be associated with it. Guilt, moral standards and responsibility are therefore likely to be related to each other in terms of cognitive biases in OCD. In Niler & Beck's study (1989) as well as examining guilt in OCD, they also looked at the relationship between anxiety and dysphoria in obsessional problems. The authors used the Intrusive Thoughts and Impulses Survey, developed for the study to measure obsessionality, and the Perceived Guilt Index (Otterbacher & Munz, 1973) as the main measure with non-clinical participants. Using multiple regression analysis, they found that dysphoria was a weak predictor of obsessionality, while anxiety was not predictive at all. Guilt was found to be the strongest predictor of the frequency of intrusive thoughts, difficulty in dismissibility, distress and the variety of thoughts. The link between guilt, moral standards and responsibility will be examined in more detail later in terms of personality traits in OCD.

Work into obsessional problems has begun to concentrate on the individual's interpretation of their own mental processes. Salkovskis (1985) stressed that the negative interpretations in OCD are not dissimilar to those made in other anxiety disorders like panic and agoraphobia. The difference is that in panic, for example, negative automatic thoughts are related to misinterpretations of bodily sensations, while in OCD, the misinterpretation is of

the significance of mental functioning i.e. cognitive intrusions. Salkovskis, Richards & Forrester (1995) stated that meta-cognitive beliefs (beliefs about one's own thoughts and thought processes) are in the same broad class as "beliefs about the meaning of bodily sensations" (as in panic). The role of meta-cognitive beliefs has already been touched on earlier in relation to Salkovskis' proposed model of OCD, in that obsessionals are proposed to misinterpret the significance not only of the content of the thought, but of its *occurrence* as well. The dysfunctional assumptions Salkovskis proposed as relevant in OCD include those related to faulty meta-cognitive beliefs, e.g. one should be able to control one's own thoughts. Rachman (1993) also recognised the importance of the individual's beliefs about the occurrence of intrusive thoughts. He examined the phenomenon of thought action fusion (TAF) in OCD (described briefly earlier). Rachman (1993) stated that the individual's misinterpretation of the significance of the thought together with an exaggerated sense of responsibility can extend to a "psychological fusion of the thought and the action itself". This means that the experience of having the thought is believed to be morally equivalent to or as morally 'bad' as actually committing the act involved in the thought. This is often referred to as moral TAF. Likelihood TAF involves the belief that thinking about an event increases the chances that it will actually happen. Rachman (1993) added that the majority of people are able to distinguish between their unwanted thoughts and their actions. It can be seen therefore, that where faulty meta-cognitive beliefs and thought action fusion interact, the significance of obsessional thinking is inflated, as is perceived responsibility.

In their study of responsibility in OCD discussed earlier, Rachman et al (1995) concluded that as the strongest correlate with obsessionality, TAF seemed to be particularly significant in OCD. Shafran, Thordarson & Rachman (1996) have recently developed the Thought Action Fusion Scale to examine the significance of TAF moral and likelihood in obsessional problems. They linked TAF to an inflated sense of responsibility. They argued that "the psychological fusion of thoughts and actions is a fundamental part of the catastrophic misinterpretation 'I am responsible for harm'" (p 380). Clearly, the belief that having a thought about an event may increase the likelihood of that event would lead to the perception of partial if not whole responsibility for the negative event. TAF would

therefore also be related to the experience of guilt associated with responsibility. Neutralising, as an attempt to remove the sense of responsibility would then follow, according to Salkovskis' model.

Shafran et al (1996) noted that some forms of mental neutralising (e.g. repeating the opposite of the thought or creating the opposite image) could be seen as a form of TAF, in that the individual is deliberately attempting to influence reality through changing their thoughts or images. They also referred to TAF as an internal rather than external source of inflated responsibility. They argued that external sources (e.g. stoves, door locks) trigger appraisals of responsibility and that these external cues have been long recognised. Internal 'provocations' in the form of TAF have only recently been acknowledged. However, TAF should not be viewed as a trigger in the same way as a cooker or door lock is. TAF should be regarded as a cognitive bias or schema which can be activated by external sources leading to misinterpretations and thus an inflated sense of responsibility. For example, an external trigger such as a knife could lead to a thought about harming someone. It is at this point that the TAF cognitive bias would begin to operate. Similarly, individuals who do not have TAF may misinterpret a similar situation due to a different but still OCD related cognitive bias, for example pivotal influence in responsibility or misinterpretation of the occurrence of the thought.

Results of the Shafran et al (1996) validation of the TAF Scale indicated that TAF is a reliable construct in both community and obsessional samples. The obsessional group consisted of 147 individuals reaching a clinical cut off of 11 on the Maudsley Obsessional Compulsive Inventory (MOCI, Hodgson & Rachman, 1977). Two thirds of the group also received a formal diagnosis of OCD. Student and community groups were used as controls. The scale consists of 19 items measuring TAF moral and TAF likelihood for others and for self. Group differences were found between the OCD and control groups for TAF moral and TAF likelihood, with obsessionals scoring significantly higher. TAF likelihood was also associated with more compulsive checking (as measured by the MOCI) for the obsessional and student groups, but not the community control. When depression was partialled out, only the correlations between TAF likelihood and checking for the

obsessional group remained significant. The authors concluded that both TAF likelihood and moral do seem to be significant factors in OCD. They noted however, that the obsessional group, although scoring significantly higher than controls on the measure, did not endorse items strongly. Due to this weak endorsement of items, the authors suggested that the scale should be used only as a starting point for identifying TAF in patients and not to show degree of TAF beliefs. Identification of the presence of TAF will clearly have implications for treatment, particularly as targeting compulsive behaviours may be less fruitful if core TAF beliefs are not challenged. A more subtle method of investigation may be needed to examine changes in TAF clinically. A number of other measures of obsessionality now include TAF as a subscale, including the Inventory of Beliefs Related to Obsessions (Freeston, Ladouceur, Gagnon & Thibodeau, 1993) and the Maudsley Obsessional Compulsive Inventory - Revised (Rachman, Thordarson, Radomsky & Shafran, 1996). Similarly, these subscales should be useful in identifying the presence of TAF, thereby directing treatment approach.

The studies described above have been seen to support the cognitive model of OCD proposed by Salkovskis (1985), in which the main dysfunctional assumptions he proposed to be operating in OCD are related to themes of: inflated responsibility; neutralisation as an attempt to 'put things right' and remove responsibility; the attachment of undue significance to the content or occurrence of the obsessional thoughts; and thought action fusion. However, the majority of studies in cognitive theories of OCD have used participants drawn from non-clinical or mixed psychiatric groups, which may have implications for the validity of findings. Before examining treatment studies and drawing conclusions about the cognitive model, the following section will provide a critical review of this methodology.

Use of Non-Clinical Participants in Research into OCD: Criticisms of Experimental Studies

Norton, Cox, Asmundson & Maser (1995) conducted an analysis of publication trends in Psychology and Psychiatry journals in the 1980s and reported a tenfold increase in the

proportion of articles reporting on anxiety disorders. This increase was found to be particularly striking for OCD, among other disorders. The growth in studies in OCD has been attributed at least in part, to an increasing tendency to use non-clinical participants as analogue samples. It has been generally accepted that the use of non-clinical participants could provide analogue information about obsessional symptomatology. However, Kazdin (1978, cited by Gibbs, 1996, p 733) stated that "the relation between an analogue study and generality to clinical situations for a given dimension itself is an area of research." This view has been recently considered in a thorough review article of the use of non-clinical participants in OCD research (Gibbs 1996).

The use of non-clinical participants can follow different methodologies which clearly has implications for the validity of using the results to further understanding of clinical disorders. The term non-clinical can mean either that the participants show some psychological difficulties but that symptomatology falls below DSM diagnosis, or that the participants do meet a diagnostic criteria but are not seeking treatment for the disorder. In OCD research, the former seems to be the predominant operational definition. Gibbs (1996) pointed out that in disorders where the form of psychopathology can be viewed on a continuum rather than representing a distinct state, confidence in the use of analogue studies can be heightened. Clearly, a diagnostic criteria itself is a classification which decides on a 'cut-off' point for 'caseness' or 'non caseness'. Non-clinical individuals may therefore be of interest in increasing knowledge of psychopathology. Gibbs also argued that clinical participants, i.e. those who are seeking treatment in psychiatric settings may in themselves be a biased and non-representative sample. Studies have shown that most individuals use primary care services rather than specialised psychiatric services, and many do not seek any help at all (Kessler, McGonagle, Zhao, Nelson, Hughes, Eshleman, Wittchen & Kendler, 1994; Robins & Regier, 1991; Shapiro, Skinner, Kessler, Vonkorff, German, Tischler, Leaf, Benham, Cofflet & Regier, 1984). Furthermore, Kessler et al (1994) found that specialist services were more likely to see individuals with co-morbid disorders which can complicate research into specific disorders. It could be argued that psychologists in fact do need to study this specific group of people who use mental health services given that it is this group who will be receiving the psychological treatment which

develops from the research. The complication of comorbid disorders, although admittedly producing more difficulties in terms of research methodology, does reflect the clinical reality of 'messy' or complicated cases which pure and controlled research does not reflect.

Differences in symptom profile between clinical and non-clinical OCD groups are quite notable. The majority of clinical patients (95%) experience both obsessions and compulsions (Rasmussen & Tsuang 1986). The majority of non-clinicals experience either only obsessions or only compulsions. Karno, Golding, Sorenson & Burnam (1988) found that only 8.6 % of a non-clinical group experienced both obsessions and compulsions. While the content of obsessions has been found to be similar in clinical and non-clinical groups, compulsions differ, in that cleaning/washing is the most common compulsion in clinical groups but was the least prevalent in a non-clinical sample (Henderson & Pollard, 1988). Furthermore, we know that the experience of intrusive thoughts is common in the normal population (Salkovskis & Harrison, 1984), as are compulsions (Muris et al, 1997): but there is likely to be a large qualitative and quantitative difference between the experience of these symptoms in clinical and non-clinical groups. The amount of distress is also likely to clearly differentiate the groups.

Burns, Formea, Keortge & Sternberger (1995) pointed out that even within non-clinical groups, the methodology employed in examining obsessionality can differ. In some cases, correlational data for all non-clinical participants is analysed between constructs relevant to OCD. In other studies, a cut-off on self-report measures is used to select the 'clinical' group. Studies vary enormously in the criteria for the non-clinical group. A lifetime prevalence rate of 2 - 3% for OCD is now accepted as being relatively stable across cultures and age cohorts and does not fluctuate significantly as a function of the methodology employed in determining criteria (Gibbs, 1996). Degonda, Wyss & Angst (1993) found a lifetime prevalence rate of 5.7% for obsessive compulsive syndromes - that is obsessive compulsive symptoms accompanied by distress and a level of social impairment, but symptomatology not severe enough to meet diagnostic criteria for OCD. There has been wide discrepancy in prevalence rates reported which means that precise

frequency is still unknown in subclinical OCD. There are also a number of reasons why diagnostic criteria may not be met, e.g. duration, distress, ego syntonic symptoms etc., which further complicates the picture and the homogeneity of subclinical groups. Burns et al (1995) recommended that given the lifetime prevalence rate in OCD, only the top 2% of a sample score should be used in analogue studies of OCD for the results to have relevance. However, Gibbs (1996) noted that in OCD research cut-offs have varied from the top 2% - 25% of the score distribution of the sample. Thus both the criteria for selecting participants as well as the cut-offs used differ considerably and mean that studies of OCD are in reality very difficult to compare and interpret. Table 1 shows the use of non-clinical participants, selection criteria and methodology employed for some of the main studies relevant to OCD. The list is not comprehensive, but covers the main studies described in the current review of research into the cognitive model of OCD and illustrates the wide variety of methodologies used. Gibbs (1996) provides a similar table in her review of the use of non-clinical participants in OCD research (pp 739 - 741).

Clark (1992) pointed out some further methodological shortcomings in research which has claimed to increase understanding of clinical OCD and provide support for Salkovskis' model. He noted that studies have often used broadly based measures to assess intrusive thoughts which are not specific to true obsessional phenomena. He stated that researchers should ensure that measures are assessing the clearly ego dystonic and unacceptable intrusive thoughts found in OCD. Other methodological flaws noted include the use of personally irrelevant or emotionally neutral intrusive thoughts in experimental studies (e.g. Clark 1992). Gibbs (1996) stressed the importance of using only personally meaningful and the most distressing thoughts in future research employing non-clinical participants. Gibbs also advised that studies examining the role of guilt and responsibility in OCD (Freeston et al, 1992; Niler & Beck, 1989; Frost, Sher & Geen, 1986; and Frost, Steketee, Cohn & Greiss, 1994) have failed to determine whether these factors were indeed specific to obsessionality or simply accompanied other anxiety states or psychopathologies.

STUDY	NUMBER before selection	TYPE OF SAMPLE AND RECRUITMENT METHOD	SCREENING AND/OR CRITERIA re OCD AND PERCENTAGES OF ORIGINAL NUMBER OF PARTICIPANTS SELECTED	MAIN STATISTICAL ANALYSIS
England & Dickerson 1988	115	Student	Experience of intrusive thoughts in the previous 2 weeks. 83% met this criteria	ANOVA
Niler & Beck 1989	76	Student / course credit	Experience of some form of obsession in last year. 99% met this criteria	Correlations, multiple regressions
Freeston et al 1991	125	Student	Experience of at least one cognitive intrusion. 99% met this criteria	MANOVA, cluster analysis, t tests
Clark 1992	246	Clinical, mixed diagnoses	None stated. 100% of original sample included	ANOVA, MANOVA, correlations
Reynolds & Salkovskis 1992	260	Non Clinical	Experience of positive and negative intrusive thoughts in past month. 20% met this criteria	ANOVA, t tests, correlations
Freeston & Ladouceur 1993	885	Non Clinical	Experience of one intrusive thought in the previous month. 83% met this criteria	MANOVA, ANOVA
Salkovskis & Campbell 1994	553	Non Clinical	Experience of 3 or more negative intrusive thoughts in previous month which caused distress (at least 30/100 on scale). 14% met this criteria	ANOVA
Purdon & Clark 1994	270	Student / course credit	Experience of at least 1 intrusive thought on revised Obsessive Intrusions Inventory. 99% met this criteria.	MANOVA, ANOVA
Rachman et al 1995, study 1	291	Student / course credit	None stated.	Correlational
Rachman et al 1995, study 2	234	Student / course credit	None stated for most analyses. For 1 analysis, a cut-off of 15 on the MOCI was used. The number meeting this criteria was not stated	Correlational
Ladouceur et al 1995	60	Recruited from student newspaper / prize draw	None stated. 100% of original sample included	MANOVA
Rheaume et al 1995	397	Student / prize draw	Only situations/thoughts rated as very relevant retained for analysis. 11% met this criteria.	Correlations, regression
Rachman et al 1996	126	Student	Evidence of TAF moral or TAF likelihood. Approximately 50 % met this criteria.	Correlational, descriptive
Salkovskis et al 1997	1370	Non Clinical	Experience of 10 or more intrusive thoughts in previous week, report of cognitive neutralising often or always and discomfort rating of at least 30/100 on discomfort scale. 2% met this criteria	ANOVA

TABLE 1. The use of non-clinical participants in OCD research. Comparison of recruitment, screening and inclusion criteria

Gibbs (1996) concluded her review by arguing that non-clinical obsessive compulsive symptoms can be considered a milder variant of OCD. This conclusion is questionable given the quantitative and qualitative differences already noted. She went on to suggest that "analogue research appears to be a worthwhile method for examining hypotheses about OCD, given the relatively limited number of OCD patients available for research purposes and the large number of individuals who exhibit low level obsessive compulsive symptoms." (p 765). While acknowledging that the use of non-clinical participants means that recruitment is easier and ethical issues are avoided, this should not necessarily be considered an important reason for continuing the use of analogue studies. However, Gibbs did qualify her conclusions by stating that there must be methodological improvements. She recommended i) recruitment with offers of treatment services rather than the use of undergraduates in exchange for money or course credits, ii) only the top 2 % of the distribution on self-report measures of OCD on 2 separate administrations should be used, iii) selection criteria must be uniform to allow comparison of results across studies and iv) laboratory studies must increase external validity, for example by using naturally occurring personally relevant thoughts. The review therefore accepted that future use of non-clinical participants in OCD research is not counter-indicated but must be uniform in methodology. Gibbs' review has however served to question the knowledge that we currently have about obsessional problems in a clinical setting, due to the difficulty in interpreting and comparing results across studies which have used such varying methodologies.

Treatment Research

A more fruitful source of information about the validity of the cognitive model of OCD may be found in studies of treatment effectiveness. Despite the increase in studies examining aspects of the cognitive theory of OCD, there have been relatively few studies examining cognitive treatment for OCD. Van Oppen & Arntz (1994) described controlled studies using cognitive techniques such as self-instructional training (Emmelkamp, van de Helm, van Zanten & Plochy, 1980) and rational emotive therapy (Emmelkamp, Visser & Hoekstra, 1988; and Emmelkamp & Beens, 1991). The conclusions drawn were that self-

instructional training did not increase the effectiveness of the traditional behavioural approaches, while rational emotive therapy appears to be equally as effective as exposure and response prevention. To my knowledge, only four published studies have tried to examine the effectiveness of cognitive techniques along the lines of Beck and Salkovskis and these will be examined in more detail below.

Freeston, Rheaume & Ladouceur (1996) described a treatment approach incorporating cognitive techniques into the traditional behavioural treatment of exposure and response prevention. The approach described is related in particular to the experience of clinical obsessions without overt compulsions. Initial intervention focused on cognitive behavioural education, giving information about the prevalence of OCD, providing a list of intrusive thoughts from community samples, giving data on the prevalence of these thoughts and the similarities and differences between patients who consult and community samples. The cognitive element of therapy involved tackling misinterpretations of intrusive thoughts and using the downward arrow technique commonly used in cognitive therapy for other anxiety and affective disorders. The authors went on to describe a number of specific interventions which can be used to target the aspects of OCD proposed by the cognitive theory: overestimation of the importance of thoughts; magical thinking; responsibility; perfectionism; need for control; and over interpretation of threat. They concluded that they had "preliminary evidence that the efficacy of purely cognitive techniques can extend to obsessional ruminators" (p 444). However, their review did not present this evidence satisfactorily as it only gave clinical examples of the use of cognitive techniques, with no experimental control or outcome data.

Van Oppen & Arntz (1994) provided a similar review of cognitive techniques in the treatment of OCD. Treatment concentrated on techniques aimed at reducing the overestimation of the probability and consequences of catastrophe and the overestimation of responsibility. Again, examples of the use of techniques with individual clinical patients were given, with no attempt to provide controlled outcome data. The authors noted that only one controlled study at that time had attempted to compare Salkovskis' cognitive therapy with exposure and response prevention (Van Oppen, de Haan, van

Balkom, van Dyck, Hoogduin & Spinhoven, 1992). They reported that preliminary data showed no significant difference between these treatments, indicating that cognitive techniques could be an effective treatment of OCD.

More recently, Ladouceur, Leger, Rheaume & Dube (1996) provided more convincing support for the cognitive treatment of OCD. Their study reported on the treatment of four patients with OCD using cognitive correction of inflated responsibility. The study used a multiple baseline across-subjects design. Participants all met DSM III-R (APA, 1987) criteria for OCD, with mainly checking rituals as the compulsive behaviour. Dependent variables were a diary of 'interference' caused by the rituals, the Yale Brown Obsessive Compulsive Scale (Goodman, Price, Rasmussen, Mazure, Fleischman, Hill, Heniger & Charney, 1989), and the Responsibility Questionnaire (Rheaume, Freeston, Dugas, Letarte & Ladouceur, 1995). Treatment involved: explanation of obsessions and compulsions according to Salkovskis' model; targeting of inflated responsibility; awareness of automatic thoughts; correction of negative automatic thoughts; and development of adequate perceptions of personal responsibility. There was no behavioural element (exposure and response prevention) to treatment. Treatment was conducted twice a week for a maximum of 32 sessions, with assessment during treatment and at 1, 2, 4, 6 and 12 months follow up. In summary, all participants were clinically improved immediately after treatment and improvement was maintained at follow-up. The authors concluded that their results were consistent with those obtained for exposure and response prevention which indicated that cognitive intervention alone is an alternative to behavioural methods. They noted that cognitive interventions may also be seen as a treatment of choice for individuals who refuse or drop out of exposure based treatments due to anxieties about this approach. The authors stressed the theoretical implications in that changing cognitions about responsibility produced clinically significant changes in compulsions. This finding supports both Salkovskis' notion that neutralising is unlikely to occur without a sense of responsibility (Salkovskis, 1985) as well as the non-clinical studies described earlier looking at the effects of experimental manipulation of responsibility (Ladouceur et al, 1995; Lopatka & Rachman, 1995). The study therefore provided evidence for the effectiveness of targeting responsibility in the treatment of OCD (with checking rituals).

Freeston, Ladouceur, Gagnon, Thibodeau, Rheaume, Letarte and Bujold (1997) provided another controlled study of cognitive treatment in OCD, but this was combined with behavioural elements. 29 patients who fulfilled DSM III-R criteria for OCD with no overt compulsions took part in the study. Participants were randomly assigned to an experimental group (n = 15) and a waiting list control (n = 14). Treatment was structured to include: a detailed cognitive account of obsessions; explanation of the rationale for exposure and response prevention; exposure to the thoughts using a loop tape; cognitive restructuring of dysfunctional beliefs; and relapse prevention. Cognitive restructuring centred on beliefs related to magical thinking, overestimation of the consequences of thoughts, exaggerated responsibility, perfectionistic expectations and inflated estimations of the severity and probability of the outcome of thoughts. The need for restructuring was determined on an individualised basis due to group heterogeneity. Patients received treatment for an average of 40.5 hours.

Outcome measures included the Yale-Brown Obsessive Compulsive Scale (Y-BOCS, (French translation) Mollard, Cottraux & Bouvard, 1989), the Current Functioning Assessment (Foa, Steketee, Grayson Turner, & Latimer, 1984), the Padua Inventory (Sanavio, 1988). Results showed significant improvements on these measures for the treatment group (even when drop outs were included) compared to the controls. Clinically significant change was determined by statistical methods for all outcome measures. On the Y-BOCS, 77% of those who completed treatment reached clinically significant improvement, dropping to 59% at six month follow-up. These percentages were slightly lower when the total sample (i.e. including those who dropped out of treatment) was analysed. For all other outcome measures, the percentage of patients whose improvement was clinically significant was lower (between 21% and 50%). The authors concluded that the study demonstrated the effective use of cognitive behavioural treatment in pure obsessionals, a group previously considered resistant to treatment. They did point out that there was a high drop out from treatment, generally during the exposure phase (only 8 patients from the original 15 completed). While their study highlighted the use of a combination of cognitive and behavioural techniques, it did not examine the effectiveness

of only cognitive techniques in pure obsessionals. However, they did report on preliminary evidence to suggest that cognitive techniques alone can be effective, based on successful cognitive restructuring in four (out of six) patients with pure obsessions (Leger, Freeston & Ladouceur, 1996).

A variety of methodologies has been used in the treatment research described above, including single case studies, group comparisons, a combination of cognitive and behavioural or only cognitive techniques and the use of specific subgroups in OCD. Further studies are needed to target the range of proposed cognitive vulnerabilities in OCD (e.g. TAF, perfectionism) and to examine the effectiveness of treatment in OCD with other overt compulsions (e.g. washing) and covert compulsions (e.g. counting, mental rituals). Research on the treatment of OCD can contribute to the validation of the cognitive theory, particularly given that to date, validation has been presumed from studies using non-clinical samples. However, further studies should be controlled and endeavour to employ robust methodology if we are to accept their findings.

Pure Obsessions

The literature described so far has concentrated almost exclusively on the theory and treatment of OCD when both obsessions and compulsions exist. Very little work has examined the experience of pure obsessions (i.e. obsessions without any overt compulsive behaviours). Estimates of the prevalence of pure obsessionals within the OCD population have varied but a median of 20 - 25% has been suggested (Freeston & Ladouceur, 1997).

Salkovskis & Westbrook (1989) explored this issue in the context of behaviour therapy for OCD. They seemed to be suggesting that pure obsessions or obsessional ruminations without compulsions do not exist, arguing that therapists have simply failed to identify the covert compulsions that follow obsessional thoughts. Covert compulsions are described as 'cognitive rituals' which the ruminator initiates to reduce the anxiety or discomfort caused by the obsessional thought. They argued that cognitive rituals, e.g. counting, praying are equivalent to the observable overt compulsions like handwashing in that they both serve to

neutralise the obsessional thought. Salkovskis & Westbrook (1989) proposed that the behavioural model can therefore be applied in obsessional ruminators by identifying the covert behaviour so that exposure to the thought is followed by response prevention to the covert behaviour normally carried out. More recently, it has been accepted that the cognitive model of OCD as well as the behavioural model can be applied to obsessions without overt compulsions. Freeston et al's (1996) study which was described earlier, demonstrated the use of cognitive techniques in the treatment of obsessions with covert compulsions (i.e. compulsions such as mental rituals). They demonstrated that obsessional patients with covert compulsions had similar faulty beliefs about the occurrence or content of their obsessional thoughts. These beliefs included: expectations about having had the thought; ideas about control; interpretations about what the thought meant and; thought action fusion. The cognitive techniques of negative automatic thought challenging and correcting faulty beliefs could therefore be applied.

It has become generally accepted that obsessional ruminations are often followed by covert behaviours which are equivalent to overt compulsions. It could be argued that this has been accepted too readily, particularly as very few studies have examined pure obsessions. Freeston & Ladouceur (1997) have attempted to rectify the near absence of research on obsessional ruminations and covert behaviours in a descriptive study of the covert behaviours of patients with obsessional thoughts. They discussed the definitions of compulsions, neutralisation and covert behaviours that have been made in the literature to clarify current understanding of pure obsessions. Rachman & de Silva (1978) distinguished between neutralisation and coping mechanisms. They saw neutralisation as attempts at 'putting right'. Neutralisation has also been described as "reparative, corrective, preventive or restorative" (Rachman & Hodgson, 1980 p 273). Coping strategies on the other hand, although not defined by Rachman & de Silva (1978) did not seem to have the same restorative quality as a neutralisation. Some examples of coping strategies given were distraction, praying, reassurance seeking and physical avoidance. Freeston & Ladouceur (1997) concluded that "neutralising is connected by its subjective meaning to the thought and is believed to be able to prevent the consequence foreseen by the thought's content in some real, causal way. Coping mechanisms are less specific and

address the thought's presence, meaning and associated discomfort." (p 336) Coping mechanisms described by Rachman & de Silva (1978) would not meet the definition of a cognitive ritual.

Freeston & Ladouceur (1997) noted that more recent writings on the subject of neutralisation have provided both broad and narrow definitions. Salkovskis (1985 and 1989a) described neutralisation narrowly as attempts to put things right and avert blame and responsibility. However, he also gave clinical examples of OCD patients' compulsions in which he included behaviours such as avoidance and reassurance seeking, which do not seem to meet the criteria of 'putting things right' (p 577). He later provided a broader definition: "it is anything they *try to do* which is intentional or effortful" (Salkovskis & Westbrook, 1989) which would include behaviours such as avoidance and reassurance seeking as forms of neutralisation. Salkovskis et al (1995) then returned to the narrower definition of neutralisation as having "the effect of reducing the perceived level of responsibility". They also stated that behaviours such as avoidance or trying to suppress the thought are different from neutralisation. The literature to date therefore continues to reflect some confusion about how to define the range of behaviours that follow obsessional thoughts; specifically what constitutes a neutralising behaviour and what could be described as a coping mechanism.

In Freeston & Ladouceur's (1997) description of covert behaviours associated with intrusive thoughts, 29 patients with dominant obsessional ruminations described how they responded to the thoughts. Eighteen strategies were identified, with seven highlighted as the most extensively used. These were: physical action; thought stopping; convincing oneself that the thought is not important; thought replacement; talking about the thought; doing nothing and; analysing the thought. However, the authors reported that 62.1 % of participants described strategies that were 'not classifiable' and did not give examples of these, which hampers a full investigation of the strategies used. They found that the majority of strategies used could only be defined as coping mechanisms and not neutralisations or cognitive rituals, even though they were effortful and intentionally employed.

Freeston & Ladouceur (1997) concluded that although the coping mechanisms did not fulfill the criteria of compulsions in DSM IV (APA, 1994), patients with dominant obsessions can meet DSM IV criteria of OCD because coping mechanisms can been seen as 'attempts to ignore or suppress' the thoughts. They take the view that patients with dominant obsessions employing mostly coping strategies should not just get "through the back door" in meeting criteria and that criteria regarding compulsions or neutralisations should be broadened. I would argue that the issue of whether patients fulfill DSM IV criteria of compulsions is not relevant because Freeston & Ladouceur (1997) have not addressed what seems to be the main issue, which is how to explain the qualitative difference between obsessionals who neutralise covertly and those who may carry out covert behaviours which can only be defined as coping mechanisms. I would accept that in many cases the compulsive behaviour does exist as a covert ritual which serves as a neutralisation. However, there is now evidence to suggest that in some cases the obsessional thoughts are not followed by any 'compulsive' behaviours which serve to neutralise the obsession (Freeston & Ladouceur, 1997; Himle & Thyler, 1989). In terms of cognitive strategies, trying to dismiss a thought by thinking about something else, or distracting oneself is clearly qualitatively different from being *compelled* to repeat a thought a specific number of times or carrying out some other form of cognitive ritual which has a senseless quality. While this issue remains problematic, research has also failed to explore the difference between individuals who have covert compulsions and those who have overt compulsions. Again, there seems a qualitative difference between a cognitive ritual like praying and an overt compulsion like handwashing. Given the cognitive account of OCD, it could be that some subtle difference in the individual's belief system could account for this difference in why some individuals show overt compulsions while others rely on covert rituals and some use only coping mechanisms and no compulsive neutralising behaviours.

The Cognitive Model of OCD - Conclusions

The cognitive model of OCD proposed by Salkovskis (1985) prompted a wealth of research. Studies have almost without exception involved non-clinical participants, which has implications for how comparable and valid their conclusions can be. Bearing this in mind, a number of conclusions have been made. The main elements and factors identified in the research as involved in the development and maintenance of OCD are summarised below.

1. A sense of responsibility for having had a thought or causing harm to self or others. Pivotal influence is particularly important. Responsibility is situation specific and not general.
2. Neutralisation as an attempt to put things right and a maintaining factor in OCD.
3. Overestimation of the probability, consequences and severity of an event.
4. Guilt (related to responsibility) as a significant factor in the maintenance of OCD.
5. Misinterpretation of the significance of the content and/or the occurrence of a thought.
6. Thought action fusion - 'moral' and 'likelihood'
7. Preliminary evidence to suggest equal effectiveness of cognitive techniques compared to behavioural techniques in the treatment of OCD.

Due to the varying methodologies and participant groups used, the influence of schemata specific to OCD still needs to be validated. In recognition of this, an Obsessive Compulsive Cognitions Working Group has recently been developed, involving 37 authors who have contributed to OCD research. Their first publication (OC Cognitions Working Group, 1997) has addressed some of the issues relevant to the advancement of cognitive research in OCD. Due to the diversity and overlap of measures, the group's main focus was to draw together research and measures related to OCD beliefs in order to coordinate research and develop a single and standardised measure of beliefs to be used in future research. The importance of measures being able to discriminate OCD from other anxiety and mood disorders was discussed, and it was concluded that although some published measures have shown OCD discriminability, this is not universal. In its examination of

published questionnaires, 17 different instruments were reported, assessing 19 different belief domains thought to contribute to the development and maintenance of OCD. From these domains, six main belief themes were concluded to be of central importance in OCD. These are: i) inflated responsibility, ii) thought action fusion and beliefs about the over importance of the consequences of thoughts, iii) excessive concerns about the importance of controlling one's thoughts, iv) overestimation of the severity and probability of threat, v) intolerance of uncertainty, and vi) perfectionism. The group has also addressed issues related to the best method of assessing beliefs in OCD (e.g. experimental, self-report) as well as how to standardise administration. This coordinated approach to improving cognitive research into OCD is a welcome and necessary advancement, and further reports from the group, particularly the development of a comprehensive measure of OCD beliefs are eagerly awaited.

Despite the wealth of research conducted to date, and the promising developments of the OC Cognitions Working Group, some areas in our understanding of obsessional problems still remain to be developed. The following section introduces the literature which has attempted to examine the basic dynamics of OCD in relation to developmental and familial antecedents. The possibility of incorporating these factors into the cognitive account will be addressed, particularly by reframing personality characteristics as core schemata in OCD.

Early Experience and OCD

Researchers have been confident in suggesting the type of dysfunctional assumptions or faulty beliefs that characterise OCD but very little attempt has been made to understand their development in terms of early experience. One exception is the work of Sookman, Pinard & Beanchemin (1994) who have developed what they describe as a "multidimensional schematic restructuring" theory and treatment for OCD. The model differs from previous approaches in a number of ways:-

- the notion of a constructivist-developmental identity structure as the basis for understanding and treating symptoms.

- attachment and developmental experiences are addressed.
- schemata are seen as multifaceted and therefore must be assessed on an individualised basis.
- central affective schemata are addressed, with obsessions considered as representing expressions of emotion which are not effectively coped with.
- aim of treatment is schematic restructuring of dysfunctional schemata, both cognitive and affective.

(adapted from Sookman et al, 1994, p 176).

The authors pointed out that cognitive therapy for any disorder should aim to identify and restructure the schemata to result in more enduring clinical improvement. They noted that cognitive therapy for OCD based on Salkovskis' model focused only on treating the specific automatic thoughts without exploring identity structure. Sookman et al (1994) stated that "treating only specific automatic thoughts without adequate consideration of underlying identity structure is insufficient for many patients" (p 179). Cognitive treatment for OCD in its current form would therefore be likely to be less substantial and long lasting.

Sookman et al (1994) began their explanation of the model by examining a model of identity structure. This is based on Guidano & Liotti's (1985) model, where attachment and early learning experiences contribute along with physiological factors in the construction of the individual's core identity. The cognitive, affective, and motor schemata can interact on a 'tacit' level and so may not be accessible to awareness even though they may be central to the aetiology and maintenance of OCD. The authors saw the development of OCD as an "interplay of specific emotional experiences, dysfunctional cognitive processes and content and inadequate coping skills.....these dimensions emanate from identity structure schemas in interaction with environmental and physiological factors" (p 179). They suggested that relevant schemata in OCD may be related to an exaggerated sense of vulnerability, confusion of thought and action, inflexibility in view of newness or change, rigid demands for performance, need for control, self doubt and difficulty with strong emotions. The schemata develop in the context of attachment

experiences. Treatment focuses on three "planes": the developmental, dimensional (cognitive, affective and behavioural) and structural (explicit to tacit), with the aim of restructuring the identity structure relevant to the development and maintenance of OCD. The authors then described three cases in which the multischematic restructuring technique was employed effectively, in patients with a long and previously intractable history of OCD. The theory and treatment described provides a promising and illuminating advance in our understanding and treatment of OCD. The emphasis on identifying core schemata and particularly examining the aetiology of these beliefs through addressing early attachment experiences is an attractive and fuller approach to treatment.

To my knowledge, very few studies have attempted to examine early experience to determine if there is any pattern related to OCD. The following section will review work which has attempted to link parental characteristics and parenting style with similar characteristics in offspring and the development of specific psychopathologies.

Research on Parental Characteristics and Their Role in Relation to OCD

Perfectionism is a personality trait which has been related to OCD and will be discussed in more detail in a later section. Several studies have found that the parents of OCD patients tend to be perfectionistic (Honjo, Hirano, Murase, Kaneko, Sugiyama, Ohtaka, Aoyama, Takel, Inoko & Wakabayashi, 1989; Allsopp & Verduyn, 1990; Rasmussen & Tsuang, 1986; Lo, 1967) and there is some evidence to suggest that perfectionism in parents is related to the development of similar characteristics in offspring. Frost, Lahart & Rosenblate (1991) suggested various mechanisms by which perfectionism in parents could lead to the development of similar characteristics in their offspring (for example: modeling, children urged to do better by their parents, parental approval given only with improved performance in offspring, the child feeling the need to perform perfectly in order to be accepted and loved). In examining perfectionism in parents, Frost et al (1991) used a methodology in which rather than relying on participants' memories and perceptions of their parents, characteristics of both parents and offspring were identified using the same self-report measures. They found that daughters' perfectionism was significantly related

to mothers' but not fathers' perfectionism in a female student sample. Daughters were more perfectionistic and concerned over mistakes, set excessively high standards and perceived their own parents as setting high standards. Frost et al (1991) also examined characteristics thought to be related to perfectionism: perception of parental demands, guilt induction, support, affection and permissiveness. Parents of daughters described as perfectionistic were reported by them to be more strict, guilt-inducing, demanding and critical and less permissive. In general, it was concluded that the parents employed a harsh parenting style. In particular, fathers were seen as more overprotective, less affectionate and less supportive. Although OCD symptomatology was not examined specifically, correlations were found between maternal perfectionism and psychological symptoms in their daughters.

Hoover & Insel (1984) studied a sample of 10 patients with severe OCD, their parents, siblings and second and third degree relatives. Their paper provided a descriptive account of each individual case, drawing together family characteristics, with no empirical evaluation. Methodology consisted of interview with patients and relatives, with the results described as 'features observed'. Despite the methodology employed, the paper provided some insight into possible family characteristics relevant to OCD. In the 174 relatives studied, none had a history or diagnosis of OCD, but a minority of first degree relatives (11.6%) had other psychiatric histories such as depression, alcohol related problems and 'nervousness'. They found that the families tended to be perfectionistic, with an emphasis on cleanliness and isolated from community/social life. The relationship between the parents of the OCD patients was described as 'unfulfilled' with 'disappointing' or distant sexual relationships in many cases. One or both parents were said to direct 'symbiotic' needs towards the patient: "parents and offspring became trapped in an increasingly powerless struggle against symptoms that acted as a barrier to closeness, but that also prevented the patient from developing an autonomous existence" (p 207). The authors concluded that a number of factors, including family characteristics and by implication parental style and developmental experiences contributed to the development of OCD.

Steketee, Grayson & Foa (1985) examined parental style as one factor that could distinguish between 'washers' and 'checkers' as subtypes of obsessive compulsive ritualising. They questioned whether different forms of ritualistic behaviours have aetiological implications. Rachman (1976) differentiated washing and checking in terms of both function and aetiology. Checking rituals were noted as preventative: to ensure that no future catastrophe would happen. The primary intent in terms of responsibility was seen to be to forestall criticism from others or themselves. Washing on the other hand, restored "a state of safety (e.g. cleanliness, hygiene) and they are preventative only in the secondary sense that a failure to restore safety is threatening" (Rachman, 1976, p 270). In terms of aetiology, Rachman proposed that there was a common but subtly different history of excessive parental control in both washers and checkers. Parents of washers were said to be more overprotective and obsessive, producing fearful children, whereas parents of checkers were overcritical, demanding and meticulous, thereby producing children fearful of making mistakes. Steketee et al (1985) examined this hypothesis in 36 washers and 23 checkers, all meeting DSM III (APA, 1980) criteria for OCD. Perceptions of parental characteristics were measured in a fairly simplistic and possibly insensitive method by patients indicating which of 13 adjectives (very clean, meticulous, disorganised, orderly, withdrawn, religious, strict, guilt-inducing, easy-going, affectionate, permissive, overprotective and demanding) applied to their mother and father. There was partial support for their hypotheses: checkers (and not washers) did perceive their mothers as meticulous and demanding, which the authors concluded would be more likely to produce overconcern with perfectionism. No significant result was found for washers' parents being more overprotective or obsessive, and no pattern was found for paternal traits in either washers or checkers. The authors pointed out that the data were collected retrospectively and therefore tapped not only patients' perceptions but also their memories of their parents. Nonetheless, their study did provide some evidence to suggest that parental characteristics and early experience may be a significant factor in OCD. A more robust method for examining parenting characteristics is examined in the following section.

Experimental Studies Using the Parental Bonding Instrument

The Parental Bonding Instrument (PBI, Parker, Tupling & Brown, 1979) was developed to examine the contribution of parental style to the parent-child bond and to define and measure constructs which appear significant in the development of psychopathologies. The measure examines two dimensions: care and overprotection. Figure 2 below shows how these dimensions translate into parental-child bonds. The instrument has been used in clinical settings to characterise different disorders. Results from various studies have suggested that 'affectionless control' (low care and high overprotection) is associated with generalised anxiety disorder, social phobia, depression and avoidant personality disorder. Panic disorder, increased dependency and increased hypochondriasis levels have been associated with 'affectionate constraint' (high care and high overprotection) (Silove, Parker, Hadzi, Pavlovic, Manicavasagar & Blaszcynski, 1991; Parker, 1981; Parker, 1979; and Parker, 1983 (see Parker, 1990 for a review)).

Fewer studies have investigated parental bonding in OCD. Hafner (1988) used a sample from an OCD self help group (81 out of 93 met DSM III-R criteria). Participants reported low maternal and paternal care scores with raised maternal overprotection scores, indicating 'affectionless control' as the most common parental characteristic. Kimidis, Minas, Ata & Stuart (1992) used scores on obsessionality and compulsivity scales to investigate parental bonding in a non-clinical adolescent sample. A brief eight item version of the PBI was used. Obsessionality was again linked to 'affectionless control', while high compulsion scores were related to high maternal and paternal over protection scores (but not care scores). Cavedo & Parker (1994) stressed the need to control for anxiety and depression scores when examining specific patterns in OCD. Using a non-clinical sample they confirmed the greater contribution of overprotection than care to obsessionality scores when anxiety and depression scores were partialled out.

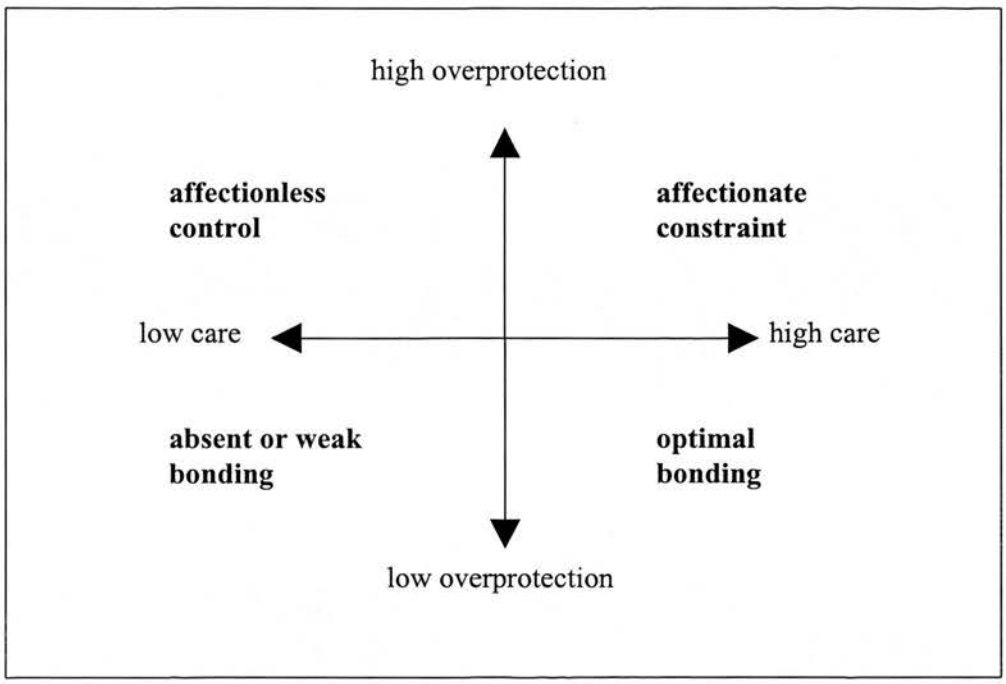

Figure 2: Dimensions measured in the Parental Bonding Instrument and how these translate into parental-child bonds (taken from Parker et al 1979).

The authors pointed out that theoretical and clinical observations would predict the importance of high overprotection scores in OCD. For example, Rachman (1976) proposed the 'overcontrol' model in which hypersensitivity in the child is overlaid by parental overconcern and overcontrol. Psychodynamic theories of OCD and obsessional personality (Salzman & Thaler, 1981) emphasise unresolved separation of the child from the mother, with parents described as overcontrolling or overinvolved. Similarly, more recent work examined earlier has linked firstly parental harshness and secondly parental strictness, criticism and lack of permissiveness, (Frost et al, 1991) to perfectionism, a trait which has been associated with OCD. In terms of the dimensions measured by the PBI, these two characteristics could be equivalent to low care and high overprotection respectively, indicating that the development of perfectionism may be associated with 'affectionless control'.

In the study described earlier, Frost et al (1994) also used the Parental Bonding Instrument to measure perceptions of parenting (i.e. early experience/attachment style). Two samples of participants were used for the study, both drawn from student populations. Separate analyses were completed for each group due to differences in age and different cut-offs used for inclusion. In the first sample, participants were included in the subclinical group if they scored above cut- offs on two out of three of the obsessive compulsive inventories employed. For the second sample, the same cut-offs were used but participants had to score above these on all three of the measures. Mean scores for the obsessive compulsive measures showed that sample 2 (n = 29) was significantly more 'obsessive compulsive' than sample 1 (n = 41). In sample 1 no differences were found between the non-clinical and subclinical groups for care scores, while significant differences were found for both paternal and maternal overprotection, with higher scores in the subclinical group. In sample 2, maternal and paternal overprotection scores were significantly higher in the subclinical group, and maternal care significantly lower, again indicating the influence of 'affectionless control'. It should be noted however that anxiety and depression were not controlled for and the group was not clinical, only 'subclinical'. The authors proposed that "an overprotected child may develop the assumption that the world is a dangerous place and that it is important to avoid unnecessary risks whenever possible" (p 54). Their findings therefore pointed to a possible mechanism for the development of a schema based on early experience. Further results reported were inconsistent across the two samples which make them difficult to interpret. There was some evidence to suggest that perfectionism in fathers (not mothers) was associated with obsessionality in their offspring. Parents also tended to be more risk aversive in the subclinical group than the non-clinical group (for one sample). Fathers were also more rigid and critical of their daughter in the subclinical group (for one sample). While it is difficult to draw firm conclusions from the data given the inconsistency across samples, the study did begin to address the need to examine how early experiences can help understanding of the aetiology and development of OCD.

In conclusion, studies which have examined parental bonding have shown some evidence to suggest a pattern of parenting related to OCD (i.e. 'affectionless control'), but the

differences in methodology, for example not controlling for anxiety and depression, short versus normal form of the PBI, and the use of clinical, subclinical and non-clinical samples means that it is difficult to draw any firm conclusions from the research conducted to date. From the point of view of the cognitive model, it would be interesting to establish a link between early experience and the development of cognitive vulnerabilities/dysfunctional assumptions which are relevant to OCD. Some of the studies described above have also suggested a link between parental characteristics and the development of personality styles in their offspring (Frost et al, 1994; Frost et al, 1991). Specific personality styles have been identified as relevant to obsessive compulsive symptomatology. These will be reviewed in the following section.

Personality Style as a Form of Cognitive Vulnerability Related to OCD

Various studies have investigated personality style in relation to OCD. Perfectionism, risk aversion and religiosity/moral strictness have all been proposed as personality traits linked to obsessionality. While cognitive accounts have in the past suggested a role for traits such as perfectionism in OCD (McFall & Wollersheim, 1979; Guidano & Liotti, 1983), developments in Salkovskis' model have not incorporated personality style into a comprehensive model of OCD. The possibility of developing an account of OCD in a cognitive vein, while incorporating factors such as personality style will be examined after a review of the main findings in the area of personality and OCD.

Perfectionism

Perfectionism has recently been described as the "tendency to set high standards and employ over critical self evaluations" (Frost & Marten, 1990). It has been linked to a variety of disorders (e.g. depression, eating disorders and other anxiety states) as well as OCD. Frost & Steketee (1997) noted that perfectionism has historically played a prominent role in theories of OCD, but that it has been given relatively little attention recently. In studies using non-clinical or subclinical participants, perfectionism has frequently been associated with obsessional traits and OCD symptomatology (Frost,

Marten, Lahart & Rosenblate, 1990; Frost et al, 1994; Gershunny & Sher, 1995). In an examination of perfectionism and obsessionality, Rheaume et al (1995b) used the Multidimensional Perfectionism Scale (Frost et al, 1990) with a student sample (n = 245). The scale has six dimensions measuring: concern over mistakes, personal standards, parental expectations, criticism, doubting of actions and organisation. Two responsibility scales were also administered (the Responsibility Questionnaire, Rheaume et al, 1995b and The R Scale, Salkovskis, 1992). The Padua Inventory (Sanavio, 1988) was used to measure obsessive and compulsive symptoms. Results indicated that both perfectionism and responsibility were moderately related to obsessive compulsive symptoms. Only moderate and weak correlations were found between perfectionism and the two measures of responsibility which indicated that perfectionism and responsibility are distinct, although related constructs. Hierarchical regression analyses found that while responsibility was a better predictor of obsessive compulsive symptoms, perfectionism explained a significant part of the variance of symptoms after responsibility had been controlled for, suggesting that perfectionism may in fact "play a significant and underestimated role in the problems of some obsessive compulsive patients" (Rheaume et al, 1995b, p 791). The authors concluded that while perfectionism may not be specific to OCD, as it is common in other psychopathologies, it may be a necessary but insufficient trait influencing the development of distorted appraisals related to OCD.

Frost & Steketee (1997) examined perfectionism in a clinical sample, to determine whether levels were higher in obsessional patients compared to patients with panic/agoraphobia. They stated that no previous study had in fact provided evidence of higher perfectionism in clinical samples of OCD patients. 35 patients with a diagnosis of OCD, a community control (n = 35) and a panic/agoraphobia group (n = 14) participated in the study. All participants completed the revised Compulsive Activity Checklist (CAC-R, Steketee & Freund, 1991) which examines compulsive activities. The Frost Multidimensional Perfectionism Scale (FMPS) described earlier was used to measure perfectionism. Results showed that OCD patients scored higher on the FMPS than community controls for total perfectionism and on the concern over mistakes and doubts about actions dimensions. However, the OCD and panic/agoraphobia groups did not differ in respect to overall

perfectionism score. Only the doubts about actions subscale showed significantly higher scores for the OCD group compared to the panic/agoraphobia group. The OCD group scored no higher than controls on the parental criticism subscale, while the panic/agoraphobia group scored significantly higher than controls on this subscale. The findings therefore did not confirm higher perfectionism in OCD patients compared to other anxiety disorders. However, the doubts about actions subscale did distinguish OCD from other anxiety disorders, so the authors suggested that certain features of perfectionism may exist which distinguish OCD from other anxiety disorder patients. They noted that as Rheaume et al (1995a) suggested, a different definition of perfectionism, such as 'perfection is possible' as a core belief, may be warranted in OCD. Frost & Steketee (1997) arrived at the same conclusion as Rheaume et al, in saying that perfectionism may be a necessary condition for the development of many forms of psychopathology, but is certainly not sufficient and does not determine the exact nature of the disorder. It may be that refining the definition of perfectionism in relation to OCD, particularly in terms of core beliefs may be a more fruitful subject of further investigation.

Risk Aversion

Risk aversion in relation to OCD has received some attention in the literature. Rasmussen & Eisen (1989) found that risk aversion was a common childhood trait in adult OCD patients. Other studies have looked at related traits such as harm avoidance (Pfohl, Black, Noyes, Kelley & Blum, 1990) and sensation seeking (Babbitt, Rowland & Franken, 1990) and found either higher levels compared to controls (for harm avoidance) or negative correlations with obsessive compulsive behaviours (for sensation seeking). Steiner (1972) looked at caution in a psychiatric sample and found that obsessional patients were significantly more cautious than any other psychiatric group. Frost et al (1994) linked the traits of caution and risk aversion to cognitive accounts of OCD (e.g. Carr, 1974) in which obsessionals are thought to have abnormally high estimates of the probability of unfavourable outcomes. They also suggested that aversion to risk may be related to attempts to avoid guilt and responsibility for causing harm, schemata that Salkovskis proposed.

Religion

Religiosity and moral strictness have been investigated in relation to OCD. Clearly, guilt may be directly related to moral strictness and as already stated, certain schemata found in OCD, such as thought action fusion may have their origins in the influence of religious teachings (Shafran et al, 1996). Guilt has already been examined in relation to OCD: Niler & Beck's (1989) study, described earlier found that guilt was the best predictor of the frequency, dismissibility and distress of intrusive thoughts and compulsions compared to anxiety and depression in a non-clinical sample. It may be that guilt as a schema may be particularly significant when examining religiosity and OCD.

Steketee, Quay & White (1991) examined the relationship between religion, guilt and OCD in a clinical sample. They pointed out that in a similar way to culture, religion may determine *how* but not necessarily *whether* OCD symptoms are expressed. 33 OCD patients and 24 anxious controls provided information about their religion of origin, current religion and self-reported religiosity (i.e. how religious they considered themselves). The Problematic Situations Questionnaire (Klass, 1987) was used to assess total guilt and three guilt subscales. The OCD group was not significantly more religious or guilty than anxious controls, but severity of OCD symptoms was positively correlated with religiosity and guilt. OCD participants who were more religious tended to report more religious obsessions as opposed to aggressive or sexual ones. Greater religious devotion was related to more guilt in the OCD group. The authors concluded that although more complicated than predicted, there does seem to be a relationship between guilt, religion and OCD. As they suggested, religion did not seem to determine whether symptoms of OCD are expressed, but did seem to influence *how* they were expressed (e.g. more devout patients experienced more religious obsessions).

Finally, in a fairly comprehensive study of personality traits, Frost et al (1994) examined risk taking, guilt, moral rigidity, perfectionism and perceived criticism. Their study also incorporated investigation of parenting style (results described earlier). Three measures of

obsessive compulsive symptomatology were used to select a subclinical OCD group from a student sample. This group was found to be significantly more risk aversive, perfectionistic and guilty than controls. No differences were found in terms of moral rigidity or perceived criticism. It should be noted that the study employed only a subclinical group of OCD participants which makes it more difficult to draw firm conclusions about personality style in OCD.

It has been shown therefore that a number of personality styles or traits have been associated to a greater or lesser extent with either OCD or obsessive compulsive symptomatology. As already stated, while cognitive accounts have in the past incorporated personality into their models, recent theorising has almost ignored it. There seems to be an unnecessary dichotomy in the research which separates personality characteristics and cognitive theory. It could be argued that this dichotomy is false and is based on choice of language rather than fundamental differences in the dimensions studied. It may be that true cognitive theorists are loath to use terms such as 'personality' or 'traits', when in fact the dimensions they are studying are effectively equivalent. For example, in terms of cognitive accounts of OCD, 'personality' could be seen as analogous to cognitive vulnerabilities or similar to dysfunctional assumptions and schemata. Perfectionism could translate, in the form of a cognitive schema, as "rigid demands for performance" proposed by Sookman et al (1994) and include dysfunctional assumptions about concern over mistakes or doubting actions. Risk aversion would similarly be related to beliefs about making mistakes. Both perfectionism and risk aversion would also be related to schemata concerning responsibility in that the possibility of being blamed for mistakes implies responsibility. Moral strictness and religiosity as personality styles have been associated with guilt (Frost et al, 1994) which has been identified as a schema related to responsibility in OCD (Niler & Beck, 1989). Religious teachings have been linked to thought action fusion as a cognitive vulnerability in OCD (Shafran et al, 1996), in which 'sinful' thoughts are seen as equivalent to 'sinful' acts. It can be seen that 'personality style' could fit easily into a cognitive theory framework.

If we accept the link between personality style and cognitive vulnerabilities it may be that dysfunctional assumptions or schemata can reflect wider personality dimensions that have been studied in relation to other psychopathologies. The personality dimensions of sociotropy and autonomy were first referred to by Beck (1983) as important dimensions in understanding depression. Similar constructs have been studied previously in relation to depression and other psychopathologies: 'dependency' and 'self criticism' (Blatt, D'Affliti & Quinlan, 1976), 'anxious attachment' and 'compulsive self reliance' (Bowlby, 1977). Sociotropy has been defined as a concern about interpersonal relationships and the need for positive interchange with others. Autonomy refers to concern about independence and autonomous achievement. Although the constructs have been associated particularly with vulnerability to depression, their influence on other psychopathologies has also been postulated (Robins, Ladd, Welkowitz, Blaney, Diaz & Kutcher, 1994), and may be relevant to anxiety disorders, including OCD. Closer examination of the nature of the constructs would support the proposal that sociotropy and autonomy may be associated with OCD. Robins (1990) stated that "highly sociotropic persons are very concerned about the possibility of *being disapproved of by others and often act in ways designed to please* those others in order to secure their attachments.....Highly autonomous persons are very concerned about the possibility of personal failure and *often act in order to maximise their control over the environment* and thereby to reduce the probability of failure" (Robins, 1990 p 393, emphasis added). From these descriptions it can be seen that cognitive vulnerabilities in OCD such as an exaggerated sense of responsibility, overestimation of threat, an inflated estimate of the probability and severity of the outcome of thoughts, concern over mistakes and need for control could be understood in terms of sociotropic and autonomous concerns.

The Personal Style Inventory (PSI, Robins et al, 1994) is a recently developed scale which measures sociotropy and autonomy. The dimensions of the PSI (which has been developed primarily to examine vulnerability to depression) includes separate subscales. Sociotropy is made up of constructs of i) concern for what others think, ii) dependency and, iii) pleasing others. The autonomy dimension consists of i) perfectionism/self criticism, ii) need for control and, iii) defensive separation. Robins et al (1994) suggested that these

constructs comprehensively cover the main domains of interpersonal and achievement dimensions described in previous research on vulnerability to psychopathologies. The constructs included in the PSI may be related to personality style or cognitive vulnerabilities in OCD, as dimensions such as perfectionism/self- criticism, need for control, concern for what others think, pleasing others are likely to be associated with obsessional traits. Dysfunctional assumptions in OCD may therefore reflect either sociotropic or autonomous concerns.

It has been hypothesised that personality styles develop from particular developmental experiences. Research examined earlier in relation to the development of perfectionism would support this hypothesis (e.g. Frost et al 1991). Broader dimensions such as sociotropy and autonomy may also have their aetiology in particular early or parenting experience. Attempts have been made to relate these personal styles to early/childhood experience, but Robins et al (1994) commented that results have been mixed, with no clear pattern emerging. Given Sookman et al's (1994) multidimensional model of OCD, the use of the PSI may be of interest in examining personality dimensions or cognitive vulnerability in OCD. The relationship between early experience and the development of cognitive vulnerabilities relevant to OCD would also be of interest.

The current study will aim to address a number of areas which recent research into OCD has failed to address sufficiently. This has been due to a number of methodological shortcomings in terms of the type of participant recruited as well as the tendency for researchers not to attempt to develop a comprehensive model of OCD which incorporates dysfunctional beliefs, cognitive vulnerabilities and early experience. Before discussing specific hypotheses in detail, the choice of experimental and control group will be briefly described.

As already discussed, the majority of studies into OCD have used non-clinical or sub clinical participants as the experimental group. The concerns about this choice of participant group have already been discussed in detail. The problems with accepting the conclusions of these analogue studies as well as negotiating the variety of methodologies

used in determining criteria and selecting the group have been addressed. It was surprising to note that the OC Cognitions Working Group (1997) did not discuss the issue of non-clinical participants in OCD research as a methodological consideration in past and future research. The group would be the forum for discussion, coordination and agreement regarding this methodology, but its apparent disinterest in this area is a disappointing oversight. The current study aimed to recruit only participants who met DSM IV criteria (APA, 1994) for OCD and/or were receiving treatment at a Clinical Psychology or Psychiatry Department. It was hoped to create two experimental groups: a clinical group of patients with obsessions and compulsions and a clinical group of pure obsessionals (i.e. with no overt or covert compulsions).

The hypotheses of the current study will be examined partly by comparing a clinical OCD group with a clinical mixed anxiety group. OCD is categorised as a distinct anxiety disorder but there has been some debate over the distinction between OCD and other anxiety disorders. This is due to the number of features of OCD which are shared with anxiety disorders and the co-occurrence of OCD and anxiety disorders. The frequent co-occurrence of OCD and depression has also led to discussion as to whether OCD should be considered an affective disorder. A number of studies have indicated that an anxiety group (rather than depressed or normal) should be used as a control for an OCD experimental group.

Crino and Andrews (1996) provided evidence to support the use of anxious (rather than depressed or 'normal') participants as the most appropriate control for an OCD experimental group. They investigated the relationship between OCD and other anxiety disorders and depression in patients with OCD (n = 108), panic/agoraphobia (n = 219) and social phobia (n = 127). Current diagnosis as well as criteria for meeting other diagnoses over the patients' lifetime were assessed using a structured diagnostic interview. Their main finding was that while OCD patients had high rates of co-occurring anxiety disorders over their lifetime, patients with other anxiety disorders had low rates of diagnosable OCD over their lifetime. Therefore, OCD patients seemed to have a vulnerability to other anxiety disorders but other anxiety disorders (although having a vulnerability to each

other) did not have a vulnerability to OCD. In relation to depression, the study found that there were high rates of comorbid depression in OCD sufferers, but rates were no higher than for other anxiety disorders. There did not seem to be any particular relationship between OCD and depression compared to other anxiety disorders. OCD therefore seems to be well placed among the anxiety disorders and the clear differences between these two groups would indicate that an anxiety group would be an appropriate control to examine differences between the two groups.

HYPOTHESES

1. Recent cognitive accounts of OCD have concentrated on trying to identify dysfunctional thinking in terms of cognitive biases or schemata which account for a specific vulnerability to OCD. As has been discussed, research in this area has predominantly used non-clinical participants and has suggested a number of dysfunctional assumptions thought to be relevant to OCD. A recently developed measure, the Inventory of Beliefs Related to Obsessions (IBRO, Freeston, Ladouceur, Gagnon & Thibodeau, 1993) provides a comprehensive examination of some of the main dysfunctional assumptions thought to be central to OCD. While the scale has been developed mainly to address meta-cognitions in obsessionals, it covers some of the other cognitive biases thought to influence OCD: responsibility; blame; guilt; thought action fusion; overestimation of negative consequences; over-estimation of negative outcomes; intolerability of uncertainty and neutralisation as an appropriate response to thoughts. It is hypothesised that the OCD group will score significantly higher on the IBRO compared to the anxious controls, indicating the unique contribution of these specific cognitive biases and schemata in OCD.

2. Research into pure obsessions is still in its infancy. It has been argued that there is a qualitative difference between coping mechanisms (e.g. distraction and avoidance) and compulsive or neutralising activities (defined as attempts at putting right and avoiding blame and responsibility). The current study will attempt to examine whether there are differences in terms of schemata/personality characteristics between groups of participants who do and do not carry out compulsive behaviours. The cognitive model of OCD explains the persistence of the disorder by stating that the occurrence or content of the obsessions leads to negative automatic thoughts about the thought. These negative automatic thoughts are related to dysfunctional schemata. It would be reasonable to accept that some schemata will be the same in pure obsessionals and obsessionals who neutralise. For example, themes measured in the IBRO such as blame, control over thoughts, intolerability of uncertainty should be equal in these two groups. However, differences in schemata could explain why some obsessionals neutralise and others do not. Themes such

as neutralisation as more appropriate than confrontation (included in the IBRO) may not be operating in pure obsessionals. Thought action fusion may also distinguish between pure obsessionals and neutralising obsessionals: the belief that thinking about something may result in it actually happening (TAF likelihood) may be more likely to provoke neutralisation. TAF moral, (thinking about an act is morally equivalent to doing the act) may not be able to distinguish between neutralisers and non-neutralisers in the same way. To sum up, it is hypothesised that pure obsessionals will score significantly higher than the anxious control group on the IBRO. However, differences between pure obsessionals and neutralising obsessionals will be found on items of the IBRO. Specifically, pure obsessionals will not report belief in thought action fusion or neutralisation rather than confrontation of thoughts to the same extent as the neutralising obsessional group.

3. Cognitive accounts of depression and anxiety have developed from identifying types of negative thoughts and information processing style associated with each disorder to addressing more core fundamental beliefs and specific vulnerabilities in terms of personality characteristics. Recent research into OCD has not developed in the same way. While some specific characteristics such as perfectionism or guilt have been examined, there has been no attempt to explore broader constructs such as 'autonomy' and 'sociotropy'; dimensions which have been extensively explored in depression. As already argued, personality characteristics are similar and related to schemata in that they are thought to be influenced by the environment and early experience, and mediate perception of self and others, as well as directly influencing behaviour towards others and the choice of personal goals. The Personal Style Inventory (PSI, Robins et al, 1994) assesses personality characteristics said to "confer vulnerability to psychopathology". Scores on the PSI will be compared between the OCD and anxiety groups. It is hypothesised that the OCD group will score significantly higher on both dimensions than the anxious control group. This hypothesis is based on closer examination of the subscales of the PSI which relate to factors or constructs already suggested as relevant to OCD, for example, perfectionism/self criticism. It is further hypothesised that sociotropy rather than autonomy will be more strongly related to OCD as the subscales it measures (concern for what others think, dependency and pleasing others) may be more related to OCD than the

autonomy subscales. Although autonomy subscales (perfectionism/self criticism, need for control and defensive separation) may appear more relevant to OCD, closer examination of individual items in each subscale would support the view that overall, sociotropy is likely to be more closely linked to OCD. Examination of individual subscales of the PSI will show higher scores in the OCD group for: concern for what others think; pleasing others; perfectionism/self criticism and; need for control, as these themes should be particularly relevant to OCD.

4. In cognitive theories, dysfunctional schemata are said to influence the development and maintenance of OCD, therefore the number and strength of dysfunctional assumptions should be related to the severity of symptoms. A positive relationship is therefore expected to be found between current symptom scores for OCD and scores on the cognitive vulnerability/schemata scales (IBRO and PSI). A similar pattern would be expected for scores on the Beck Anxiety Inventory (BAI, Beck, Epstein, Brown & Steer, 1988) and PSI, particularly in the anxious group, as an indication of the relationship between symptoms of anxiety and cognitive vulnerability factors. Individual subscales of the MOCI - R (Rachman et al, 1996) should also be positively related to IBRO scores. In particular, a large correlation would be expected between the obsessions subscale of the MOCI - R and the IBRO, given that the IBRO assesses dysfunctional assumptions related to beliefs about obsessions.

5. Research which has examined early experience and OCD has again used mostly non-clinical participants and methodology has varied (particularly in relation to controlling for anxiety and depression). It has therefore been difficult to draw firm conclusions about patterns of parenting related to OCD. The current study will use the Parental Bonding Instrument (PBI, Parker, Tupling & Brown, 1979) to examine experience of parenting in a clinical OCD group, controlling for anxiety and depression scores. Given the pattern that previous research has found, it is hypothesised that a large proportion of both the anxiety and OCD group will fall into the 'affectionless control' category, indicating high overprotection and low care. In particular, it is hypothesised that overprotection will be

more relevant to OCD than care, given the psychodynamic (Salzman & Thaler, 1981) and overcontrol models of OCD (Rachman, 1976).

6. The hypotheses proposed so far have addressed whether there are differences in cognitive vulnerability in terms of schemata and personality characteristics (as far as these can be assessed in a questionnaire format) between an OCD and anxiety group. The significance of early experience and specifically parenting style has also been discussed. Could there be a relationship between early experience and particular schemata or personality characteristics? The work of Sookman et al (1994) has stressed the need to examine early experience and attachment as a way of understanding current thinking style and schemata in the OCD patient. Furthermore, the dimensions of sociotropy and autonomy in the PSI have been hypothesised to derive from particular developmental experiences (Robins et al, 1994). The current study will therefore address whether parental style reported by participants is related to dysfunctional schemata and personality style as measured by the IBRO and PSI. Firstly, 'affectionless control' (high overprotection and low care) has been associated with OCD symptomatology. OCD has been related to specific cognitive vulnerability which is thought to develop through early experience. If parenting is related to the development of dysfunctional assumptions in OCD, then high scores on the IBRO should be associated with 'affectionless control'. In terms of personality dimensions, some non-linearity may be found in relation to parenting and cognitive vulnerability. For example, high scores on sociotropy may arise as a consequence either of extreme 'overprotection' or extreme 'underprotection'.

7. The previous hypothesis begins to examine the relationship between early experience and cognitive vulnerability. The final hypothesis looks at the relationship between OCD symptomatology, early experience and cognitive vulnerability. In cognitive theorising, schemata are seen as mediating factors which underlie and can account for the development and maintenance of psychopathology. A model of OCD could be developed which linked 'adverse' or specific early experience to psychopathology in adult life though the mediating influence of dysfunctional assumptions and cognitive vulnerability (see figure 3). It is hypothesised that there will be a positive relationship between pathological

scores ('affectionless control') on the PBI and patients' symptoms of OCD and anxiety. If cognitive vulnerability is the mediating factor which can account for the development and maintenance of OCD, the relationship between PBI scores and OCD symptomatology will be reduced or eliminated when scores on the cognitive vulnerability measures (PSI, IBRO) are controlled for.

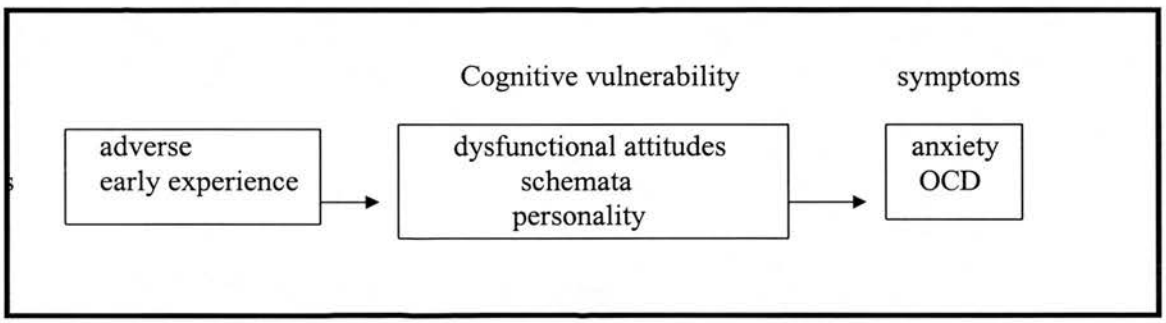

FIGURE 3: Cognitive vulnerability as the mediating factor in the development of anxious and obsessive compulsive symptoms.

METHOD

Measures

1. The *Structured Clinical Interview for DSM III-R Patient Edition* (*SCID - P,* Spitzer, Williams, Gibbon and Frost, 1990) is a structured interview schedule for assessing criteria required for a diagnosis of OCD. Although the schedule has been developed in relation to DSM III-R (APA, 1987) criteria for OCD, comparison with DSM IV (APA, 1994) criteria shows that there are no significant differences between previous and current criteria. The interview generates information about the experience of obsessions and/or compulsions. In the case of obsessions, the qualitative experience of the obsessional thought is examined to distinguish it from other forms of anxious ruminations (e.g. worrying about having a panic attack). Distinctions are made to exclude a possible psychotic element to thoughts or the thoughts being related to another co-existing disorder (e.g. thoughts of food associated with an eating disorder). Information is also sought on the amount of distress or interference with social functioning experienced due to symptoms. Each section of the format (either symptoms or qualitative distinctions) is rated as absent/false, subthreshold or threshold/true to inform diagnosis.

2. The *Beck Anxiety Inventory* (BAI, Beck, Epstein, Brown & Steer, 1988) is a measure of anxiety symptoms. It is used frequently in research to provide an anxiety rating. The scale consists of 21 items describing mostly physical symptoms of anxiety which correspond closely to DSM III-R generalised anxiety and panic disorder symptoms. Items are rated on a 0 - 4 scale (not at all to severe). The authors reported good internal consistency (α = 0.92) and stability (r = 0.75 at 1 week interval) and evidence of good convergent, divergent and factorial validity (Beck et al, 1988a).

3. The *Beck Depression Inventory* (BDI, Beck, Rush, Shaw & Emery, 1979) consists of 21 items to measure the intensity and severity of depressive symptoms. Each item has four alternatives describing different types of depressive symptoms increasing in severity. It is

used extensively in research and numerous studies have supported its convergent and discriminant validity (Beck, Steer & Garbin, 1988)

4. *The Maudsley Obsessional Compulsive Inventory - Revised* (MOCI-R, Rachman, Thordarson, Radomsky & Shafran, 1996). The original MOCI (Hodgson & Rachman, 1977) has been used widely in OCD research and has been considered one of the best measures of specific OCD related behaviour (Taylor, 1995). However, it has several limitations, particularly the categorical format of true/false responses and the absence of a number of themes now thought to be related to OCD. Rachman and colleagues have therefore developed a revision of the original scale. The version used in the current study is a 62 item inventory which consists of 9 subscales: contamination, checking, obsessions, hoarding, indecisiveness/ perfectionism, concern over mistake, routine/counting/slow, TAF moral and TAF likelihood. The TAF subscales measure beliefs rather than symptoms and are not included in the main scale total. Items are rated on a 0 - 4 scale (not at all true of me to very much true of me). Preliminary studies showed good reliability in both student and obsessive compulsive samples (α = 0.95) for the 7 main subscale totals (Thordarson, 1997, personal communication).

4. *The Inventory of Beliefs Related to Obsessions* (IBRO, Freeston, Ladouceur, Gagnon & Thibodeau, 1993) was developed to assess some of the main schemata thought to be related to OCD, with the main emphasis on meta-cognitive beliefs. The scale consists of 20 items which are rated on a scale of 1 - 6 (1 = I believe strongly that this statement is false to 6 = I believe strongly that this statement is true). Individual items are grouped into 9 subscales: i) direct or indirect responsibility for harming, possibly harming or failing to prevent harm to self or others; ii) blame or blame avoidance; iii) control of thoughts and actions and possible consequences of not controlling such thoughts; iv) thoughts as causing or provoking harm; v) guilt as an appropriate response to thoughts; vi) overestimation of negative outcomes; vii) reaction to danger; viii) the neutralisation rather than confrontation of thoughts; and ix) the intolerability of uncertainty. The scale therefore assesses the main belief domains identified by the OC Cognitions Working Group (1997). Component analysis of the 20 items of the scale revealed three main dimensions: dysfunctional

responsibility schemata (11 items), overestimation of threat (5 items) and intolerance of uncertainty (4 items).

Freeston et al (1993) reported on the statistical properties of the scale. The total scale has adequate internal consistency ($\alpha = 0.76$), reliability ($\alpha = 0.82$) and test-retest reliability ($r = 0.70$). The scale also showed evidence of criterion, convergent, discriminant and factorial validity. Clark and Purdon (1995) in a review of measures which have been developed to examine OCD concluded that the IBRO was a promising instrument for assessing dysfunctional beliefs related to obsessions.

The Personal Style Inventory (PSI, Robins, Ladd, Welkowitz, Blaney, Diaz & Kutcher, 1994) is a measure aimed at identifying sociotropic or autonomous personality traits. The inventory consists of 48 statements about personal characteristics, which are rated on a 1 - 6 scale (1 = strongly disagree to 6 = strongly agree). Each of the two personality dimensions consists of three subscales. Sociotropy is made up of: concern for what others think; dependency; and pleasing others. Autonomy consists of: perfectionism/self criticism; need for control; and defensive separation. The inventory showed good factor structure, internal consistencies ($\alpha = 0.88$ for sociotropy and 0.86 for autonomy) and test-retest reliability ($\alpha = 0.80$ for sociotropy and 0.70 for autonomy) with low correlation between dimensions ($r = 0.18$). Convergent and discriminant validity were acceptable.

The *Parental Bonding Instrument* (PBI, Parker, Tupling & Brown, 1979) assesses the individual's attitudes towards each parent separately on two identical scales. The participant is asked to rate attitudes and behaviours (very like to very unlike) as they remember each parent in the first 16 years of life. The instrument has two subscales: care and overprotection, which total 25 items. The instrument has good factor structure, with adequate validity and good test-retest reliability ($r = 0.76$). Sex, age and social class of respondents were found to be uninfluential. It has also been shown that PBI scores are not influenced by mood (Parker, 1990; Gerlsma, Kramer, Scholing & Emmelkamp, 1994). The PBI was designed to measure *perceived* parental characteristics and therefore requires retrospective and subjective accounts. Various strategies (e.g. corroborative reports from

siblings and parents, comparing scores of twins) have supported the PBI as a relatively accurate measure of actual parenting (Parker, 1990), although results of longitudinal studies are still awaited.

Participants

Participants for the experimental group were recruited by a number of methods. Clinical Psychology and Psychiatry Departments were asked to identify patients that were currently being seen or recently had been seen for obsessive compulsive difficulties. A local OCD self-help group was also contacted.

Patients currently receiving treatment for a range of anxiety disorders were recruited from Clinical Psychology Departments to form the control group. The majority were participating in a psycho-educational anxiety management group.

Procedure

Participants in the experimental group were informed of the study through various methods. The majority (13) were introduced to the study by their psychologist who explained the nature of the research and provided written information. Participants who expressed an interest were contacted by the researcher to arrange an appointment. Patients who were in contact with Psychiatry services or who had terminated/completed treatment were sent an introductory letter and information sheet directly from the researcher. If patients expressed an interest in the study (by returning a slip to the researcher) an appointment was arranged. Current in-patients were approached by the researcher who gave written and verbal information about the study. They were given time to decide if they wanted to take part in the study, and if willing a time was arranged for the researcher to return.

At the appointment further information was given to participants about the nature of the research and they were given the opportunity to ask questions. Information given was

limited so as not to produce bias in responding. All participants who attended the appointment agreed to take part in the research and signed a consent form. Data collection was carried out at that meeting. Participants were advised that they could withdraw from the study at any time. A clinical interview was conducted to gather demographic information and determine the nature and duration of obsessive compulsive problems as well as treatment history. Formal diagnosis of OCD was made based on the SCID-P structured interview format (Spitzer et al, 1990). If participants met criteria they were then asked to complete the questionnaires detailed above. After completing the questionnaires, the full aims of the study were discussed with the participant. They were offered a booklet on obsessional compulsive problems and the option of receiving a summary of the research findings when completed. The procedure lasted between one to two hours in most cases. The three participants who were in-patients completed the questionnaires over a number of sessions.

The procedure for the control group varied. All participants were given written information about the study and their inclusion as a control was explained by their Psychologist. A minority (three) followed the same procedure as above, meeting with the researcher to obtain demographic information and details of the anxiety disorder before completing the questionnaires. The remainder who expressed an interest in participating in the study to their Psychologist, were given or sent the questionnaire battery which included a top sheet to obtain the demographic details and information related to the type of anxiety disorder and type and length of treatment. The Psychologist involved in their treatment was contacted to clarify information if it was not provided adequately by the participant. Participants were not asked directly about obsessive compulsive symptoms, although this information was provided in the MOCI-R. No participants in the control group had received a diagnosis of OCD. The battery consisted of the same questionnaires detailed above. Participants either returned the battery to their Psychologist or by post to the researcher, in a pre-paid envelope.

RESULTS

Experimental Group

A total of 54 patients was contacted in relation to the research. 26 agreed to take part in the study. Three participants were excluded as they did not fulfill the criteria for OCD. Only one participant experienced pure obsessions (i.e. the experience of intrusive thoughts which met criteria for obsessions (DSM IV, APA, 1994) with no overt or covert compulsions) It was therefore impossible to create a separate experimental group of participants with pure obsessions. This participant was included in the main experimental group. The main group therefore consisted of 23 participants. The mean age of participants was 36.4 years (range 20 - 61 years, 9.4 standard deviation in years). 14 were male and 9 female.

12 participants were currently being seen as Clinical Psychology outpatients. Six reported receiving predominantly behavioural treatment, with five participants indicating a cognitive as well as behavioural element to treatment. One patient was in the process of cognitive behavioural assessment. Three participants were currently inpatients, one of whom was receiving behavioural treatment. Five participants had been in contact with Psychology services in the past year (two had received predominantly behavioural treatment and three cognitive behavioural treatment). Participants were not asked about the amount of psychological intervention received. Three participants were attending a Psychiatry service. Within the group, five participants were recruited through a local obsessive compulsive disorder self-help group. Of these, two were currently receiving psychological treatment and three had had contact with Psychology services in the past.

18 participants were taking medication, mostly prescribed for obsessive compulsive symptoms. Two participants had a previous diagnosis of a psychotic disorder (schizophrenia and manic depression). Both were receiving medication for these disorders, but on clinical interview obsessive compulsive symptoms were considered separate and distinct and warranted a diagnosis of OCD.

Average duration of the disorder ranged from 1 - 24 years, with a mean of 9.8 years. This was based on participants' estimations. A number of participants reported several contacts with mental health services over the course of the disorder's duration. A variety of obsessions and compulsions were reported. The most common obsessional symptoms were the experience of repeated doubts, followed by thoughts of harm coming to self or others, need for order and contamination. The most common compulsions were checking and cleaning. Most participants had a number of obsessions and compulsions. Table 2 gives a summary of the main OCD characteristics of the group.

Control Group

34 patients receiving treatment for anxiety disorders were contacted about the study. 25 patients agreed to participate. One participant was excluded on the basis of a high score on the MOCI-R (102), and two participants were excluded as they did not complete all of the questionnaires in the battery. This left a total of 22 participants. Of these, eight experienced symptoms of Generalised Anxiety Disorder and 14 suffered from panic attacks. 14 were female and eight male. Mean age was 36.4 years (range 16 to 57 years).

Participants had been in treatment with a Psychologist for between one week and two years, with a mean of 13 weeks. The majority (n = 15) had been in contact with Psychology services for less than six weeks. The figures reported were an estimate made by participants and as they were not asked to report on the number of appointments with a Psychologist it is difficult to determine a precise level of psychological involvement. In all cases, treatment was predominantly cognitive behavioural. 12 participants were taking medication for anxiety and depression (lofepramine, propranalol, imipramine, venlafaxine, thioridazine, paroxetine). Participants in this group were not asked about the duration of their anxiety disorder or treatment history.

Comparison of Groups

The experimental and control groups did not differ significantly in terms of age ($t = .01$, $p = .91$, df 43, SE of diff 3.20), sex ($t = 1.66$, $p = .11$, df 43, SE of diff = .15) or years in education ($t = 1.98$, $p = .06$, df 42, SE of diff = .76). As expected, the groups differed significantly on obsessive compulsive symptoms as measured by the MOCI - R, with a mean score of 81.09 for the experimental group and 32.32 for the control group ($t = 5.73$, $p < .01$ (one tailed), df 43, SE of diff 8.51). There was no significant difference between groups on depressive symptoms, as measured by the BDI. Mean scores were 19.70 for the experimental group and 16.45 for the control group ($t = 1.1$, $p = 0.28$, df 43, SE of diff, 2.95). Groups did not differ significantly on the BAI. The mean score for the OCD group was 20.39 and 23.68 for the anxious group, ($t = .84$, $p = .41$, df 43, SE of diff, 3.93). Table 3 below shows the means, standard deviations and range of scores on these measures for both groups.

MEASURE	MEAN	STANDARD DEV.	RANGE
OCD GROUP			
14 female 9 male			
AGE	36.39 +	9.48	20 - 61
EDUC	13.22 +	2.92	10 - 20
MOCI - R	81.09 *	32.71	35 - 134
BDI	19.70 +	10.74	3 - 48
BAI	20.39 +	13.73	4 - 48
ANXIOUS GROUP			
13 female 9 male			
AGE	36.41	11.88	16 - 57
EDUC	11.71	1.98	10 - 17
MOCI - R	32.32	23.37	2 - 77
BDI	16.45	8.89	6 - 39
BAI	23.69	12.62	7 - 60

Table 3: Sex, age, years in education, and scores on the Maudsley Obsessional Compulsive Inventory - Revised, Beck Depression Inventory and Beck Anxiety Inventory for the experimental and control group. + = no significant difference between groups ($p > .05$). * = significant difference between groups ($p < .01$)

Sex	Age	Duratin of OCD	Medication	Obsessions	Compulsions	Psychological treatment
F	39	17 years	sertraline, lithium thioridazine.	violent thoughts and images, thoughts of harm coming to self or others	checking, repeating actions, reassurance, repeating words	none
M	33	22 years	clomipramine, thioridazine, procyclidine	violent and sexual thoughts, images and impulses, thoughts of harm coming to family and others	counting, checking, reassurance, avoidance, repeating the opposite of the thought	behavioural (in patient)
F	31	13 years	none	need to have things in a particular order	checking, repeating actions, counting	behavioural
F	33	5 years	fluoxetine	contamination, repeated doubts	checking, cleaning, reassurance	cognitive behavioural in past
M	38	2 years	clomipramine	contamination, repeated doubts, thoughts of harm coming to family and others	checking, cleaning, reassurance	behavioural in past
M	50	3 years	none	repeated doubts, thoughts of harm coming to family and others	checking	none
F	31	20 years	paroxetine	contamination, repeated doubts, need to have things in a particular order	checking, cleaning, counting	cognitive behavioural
F	35	6 years	none	contamination, repeated doubts, need to have things in a particular order	checking, repeating actions, following specific routines, hoarding, counting, repeating words silently, thinking through routines	cognitive behavioural
M	32	3 years	clozapine	repeated doubts, thoughts of harm coming to self or others	checking, routines, mental (covert) routines and checking	behavioural
M	61	20 years	paroxetine	repeated doubts, thoughts of harm coming to self and others, need to have things in a particular order	checking, repeating actions, praying	behavioural
M	30	18 years	fluoxetine	contamination, aggressive images, thoughts of having harmed someone	no compulsions - reassurance seeking only	cognitive behavioural in past (in patient)
M	50	5 years	sertraline	contamination, need to have things in a particular order, aggressive impulses	checking, cleaning, repeating actions, reassurance seeking	cognitive behavioural

M	26	6 years	Clomipramine	repeated doubts, sexual imagery	checking, repeating actions, reassurance seeking	cognitive behavioural in past, self help group
M	27	14 years	clomipramine	contamination, repeated doubts	checking. cleaning, repeating actions, reassurance seeking, praying, counting, repeating words	none
M	34	2 years	paroxetine, benzhexol, trifluoperazine	repeated doubts, blasphemous thoughts, sexual imagery	reassurance seeking, praying	cognitive behavioural, self help group
M	45	15 years	fluoxetine	repeated doubts, thoughts of harm coming to self or others, need to have things in a particular order	cleaning	behavioural in past, self help group
F	48	18 years	clomipramine	repeated doubts, aggressive impulses	checking	cognitive behavioural in past, self help group
M	20	1 year	fluoxetine	sexual thoughts and imagery	praying, repeating the opposite of the thoughts	none
M	37	10 years	nefazodone	contamination, repeated doubts, need to have things in a particular order	cleaning, repeating actions, counting, repeating words silently	behavioural
F	28	10 years	none	horrific images, thoughts of harm coming to others	repeating actions	cognitive
F	30	5 years	clomipramine, paroxetine, fluoxetine	repeated doubts, thoughts of having caused harm to others, sexual imagery	checking, repeating actions, reassurance seeking, routine, covert rationalisation	cognitive behavioural, self help group
M	38	24 years	fluoxetine	contamination, repeated doubts, need to have things in a particular order	checking, cleaning, reassurance seeking, counting, repeating words silently	behavioural
F	43	1 year	none	repeated doubts, need to have things in a particular order	checking, repeating actions, reassurance seeking, counting	behavioural (in patient)

Table 2: Main characteristics of the experimental group, showing sex, age, duration of Obsessive Compulsive Disorder, medication, psychological treatment received and nature of obsessions and compulsions.

MAIN HYPOTHESES

Hypothesis 1. *Comparison of scores between the experimental and control group on the Inventory of Beliefs Related to Obsessions: the unique contribution of specific cognitive biases to OCD.*

It was hypothesised that the OCD group would score significantly higher than controls on the IBRO to demonstrate the unique contribution of specific dysfunctional beliefs about obsessional thoughts to the maintenance of OCD. An independent t test was carried out between groups to compare scores on the IBRO. The mean score on the inventory for the OCD group was 68.96 and 71.64 for the anxious group. No significant difference was found between groups ($t = .69$, $p = .25$ (one tailed), df 43, SE of diff 3.89), disconfirming the hypothesis (see table 4).

Hypothesis 2. *Pure obsessionals and differences in dysfunctional assumptions which distinguish them from neutralising obsessionals.*

It was hypothesised that pure obsessionals would score higher than controls on the IBRO and that differences would be found between the pure and neutralising obsessionals on particular subscales/items of the IBRO. As it had not been possible to recruit a separate group of pure obsessionals, no analysis was completed for this hypothesis. As only one participant experiencing pure obsessions was recruited, it was not possible to provide statistical comparison. Appendix 1 provides a qualitative description and individual scores of this participant as a brief exploration of the experience of pure obsessions in the light of the hypothesis.

	OCD	ANXIOUS	t TEST (one tailed)
IBRO			
mean	68.96	71.64	t = .69 p = .25 (NS) 43 df
st. dev.	13.13	12.95	
range	40 - 93	48 - 100	
PSI SOCIOTROPY			
mean	108.0	106.05	t = . 37 p = .36 (NS) 43 df
std dev	19.01	16.68	
range	50 - 138	76 - 143	
PSI AUTONOMY			
mean	91.35	88.55	t = .59 p = .28 (NS) 36.39 df
std dev	12.53	18.78	
range	61 - 117	60 - 122	

Table 4: Means. standard deviations and range of scores for the Inventory of Beliefs related to Obsessions and sociotropy and autonomy scales of the Personal Style Inventory for the experimental and control group. t values and significance for between group comparisons. (NS = not significant)

Hypothesis 3. *Comparison of scores between the experimental and control group on the Personal Style Inventory. It was predicted that the construct of sociotropy would be more relevant to OCD than autonomy. Examination of individual subscales of the PSI was planned to highlight themes of particular relevance to OCD.*

a. It was hypothesised that the OCD group would score significantly higher than controls on both constructs of the PSI. 1 tailed independent t tests were conducted to compare sociotropy and autonomy scores between groups, as measured by the PSI. Mean scores showed that for both sociotropy and autonomy, scores were higher in the experimental group (see table 4) but the difference was not significant for sociotropy (t = .37, p = .36, df 43, SE of diff 5.34). For autonomy, a Levene's test for equality of variance showed a significant difference in group variances (F = 6.34 p = < .05) showing that variance was greater in the anxious group and indicating the need to adjust the t test in accordance. The adjusted t test indicated no significant difference in autonomy scores between groups (t = .59, p = .28, df 36.39, SE of diff, 4.78). As groups did not differ significantly on the BDI depression would not be a confounding variable in comparison of the sociotropy and

autonomy constructs between the OCD and anxiety groups. Figure 4 shows the distribution of autonomy and sociotropy scores for the two groups.

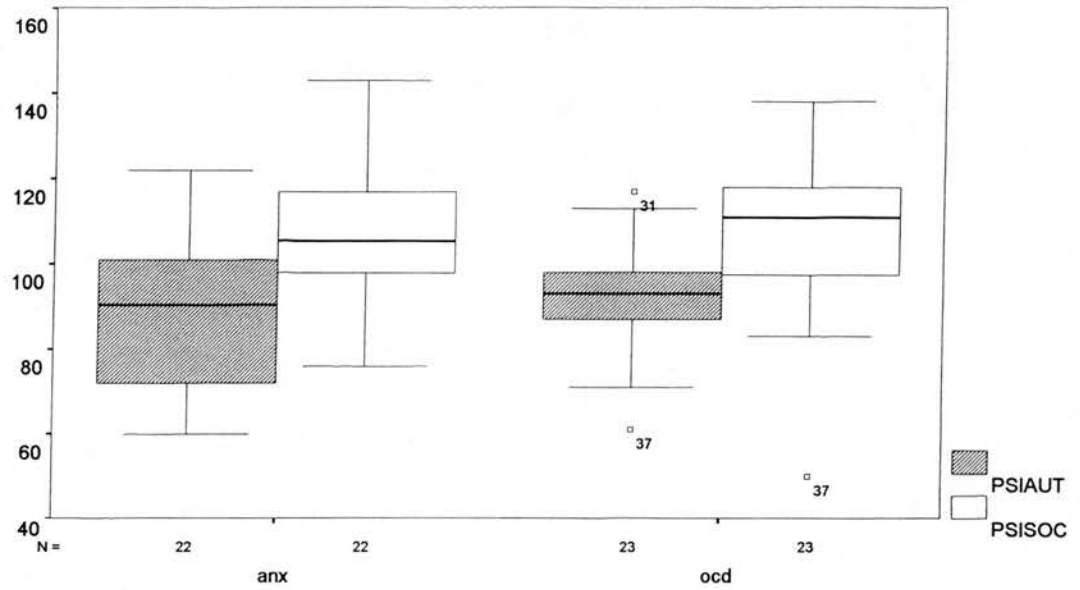

Figure 4: Distribution of sociotropy and autonomy scores for the OCD and anxious groups.

b. It was hypothesised that sociotropy would be more strongly related to OCD than autonomy. Pearson product-moment correlations (1 tailed) showed that neither construct was significantly correlated with scores on the MOCI - R in the OCD group (for sociotropy, $r = .28$, $p = .10$ and for autonomy, $r = .24$, $p = .14$). As correlations were not significant, comparison of the size of correlations was not appropriate.

The same procedure was conducted within the anxious group. 1 tailed Pearson product-moment correlations were conducted between MOCI - R scores and sociotropy and autonomy. Significant correlations were found for both sociotropy and autonomy (sociotropy $r = .71$ $p < .001$; autonomy $r = .51$ $p < .01$). Using the formula devised by Williams (1959) and endorsed by Steiger (1980) to test the difference between strength of non-independent correlations, the difference in correlations did not reach statistical significance at the .05 level ($t = 1.40$, $p < .10$, 19 df). Scatterplots to illustrate the

relationship between MOCI - R scores and sociotropy and autonomy in the OCD and anxious group are shown in Figure 5.

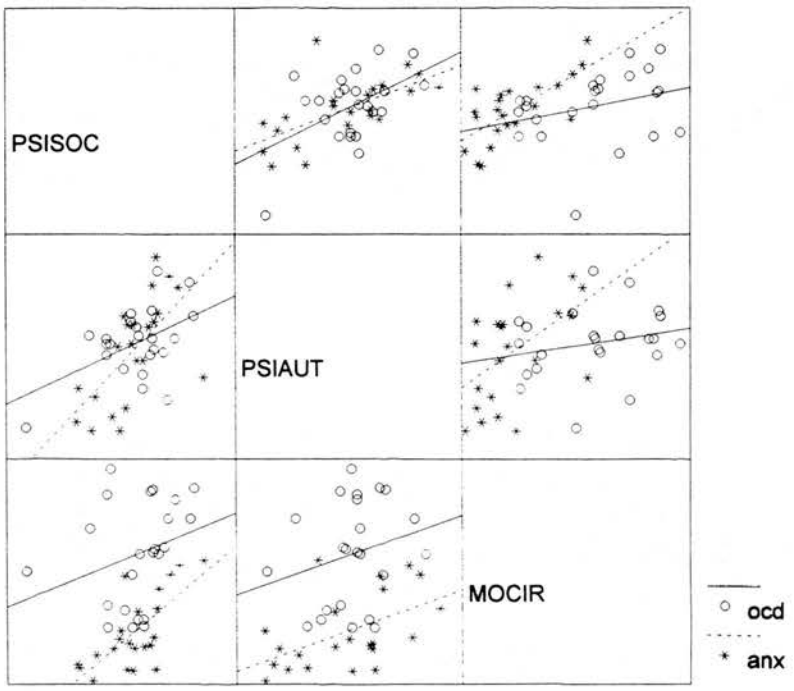

Figure 5: Correlation matrix for scores on the Maudsley Obsessional Compulsive Inventory - Revised and sociotrpy and autonomy in the OCD and anxious groups.

c. Scores on the individual subscales of the PSI were compared between groups. It was predicted that higher scores on the subscales 'concern for what others think', 'pleasing others', 'perfectionism/self criticism' and 'need for control' would be found in the OCD group. The results are shown in table 5 below. 1 tailed t tests were conducted for subscales where higher scores for the OCD group were predicted. The remaining subscales were compared using 2 tailed t tests. No significance difference was found between the OCD group and anxious groups on any of the subscales. Figure 6 illustrates the similar subscale scores obtained on the PSI for the OCD and anxious group.

Subscale of Personal Style Inventory	t value	p value	df / SE of diff
concern for what others think	.39	.35*	43 / 1.90
Dependency	.02	.98+	43 / 1.74
pleasing others	.53	.30*	43 / 2.37
perfectionism/self criticism	1.44	.08*	43 / 1.16
need for control	.76	.23*	43 / 1.92
defensive separation	.12	.90+	43 / 2.70

Table 5: Series of t tests for subscales of the Personal Style Inventory between the OCD and anxious group. (* = 1 tailed + = 2 tailed)

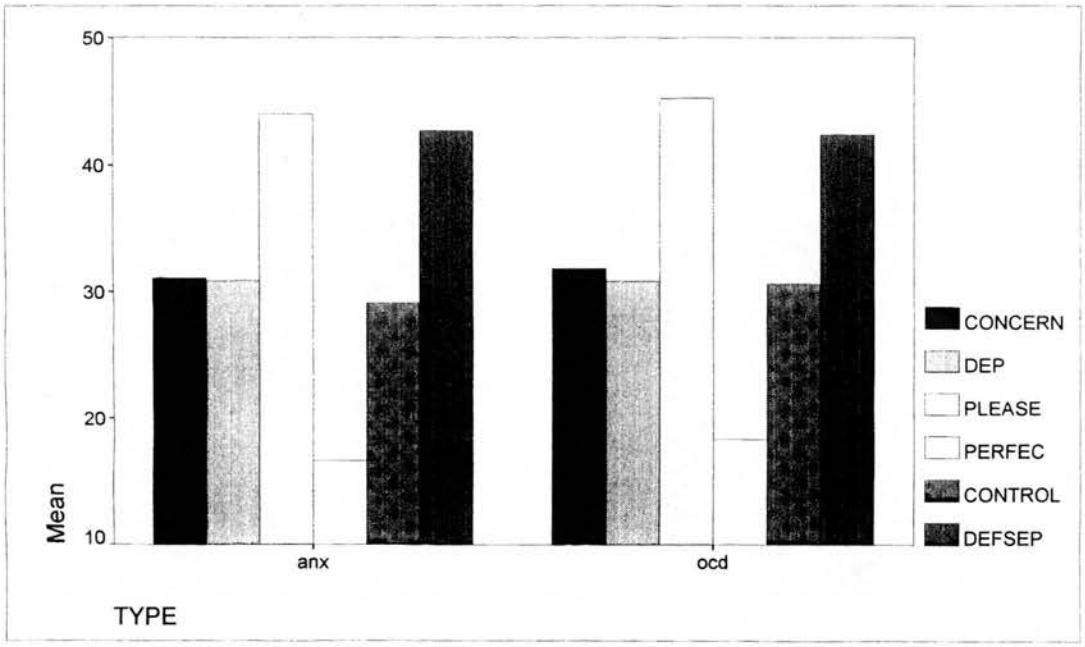

Figure 6: Distribution of scores on subscales of the Personal Style Inventory, to illustrate the similar scores between the OCD and anxious group. Note that total obtainable scores for each subscale varies, so that comparison *within* groups is not possible.

d. A further series of Pearson product-moment correlations was conducted for PSI subscale scores and MOCI - R scores for both groups to test whether specific subscales were more related to OCD than others. 1 tailed correlations were conducted for the four

subscales hypothesised to be most relevant to OCD. Correlations for the remaining two subscales were 2 tailed. Within the anxious group, significant correlations were found for most of the subscales (excluding 'need for control'), while only one significant relationship (for 'perfectionism/self criticism') was found within the OCD group (table 6).

subscale of Personal Style Inventory	r	p
OCD GROUP		
concern for what others think*	.26	.12
dependency+	.22	.31
pleasing others*	.29	.09
perfectionism/self criticism*	.42	< .05
need for control*	-.01	.49
defensive separation+	.21	.34
ANXIOUS GROUP		
concern for what others think*	.57	< .001
dependency+	.60	< .005
pleasing others*	.63	< .001
perfectionism/self criticism*	.47	< .05
need for control*	.33	.07
defensive separation+	.47	< .05

Table 6: Pearson product-moment correlations between scores on the Maudsley Obsessional Compulsive Inventory - Revised and sociotropy and autonomy in the OCD and anxious group. (* = 1 tailed correlation + = 2 tailed correlation.)

Hypothesis 4. *Examination of the relationship between symptomatology and strength of dysfunctional beliefs in OCD and anxiety.*

a. It was hypothesised that the number/severity of symptoms of OCD and anxiety would be positively related to scores on cognitive vulnerability measures (IBRO and PSI). The relationship between obsessive compulsive symptomatology and sociotropy and autonomy has been examined in the previous hypothesis (3b) where no relationship was found in the OCD group, while positive correlations were found between MOCI - R scores and sociotropy and autonomy within the anxious group. A 1 tailed Pearson product-moment correlation was conducted for scores on the IBRO and MOCI - R in the OCD group to test

the hypothesis that there would be a positive correlation between dysfunctional beliefs related to obsessions and obsessive compulsive symptoms. A significant relationship was found ($r = .43$, $p < .05$). Within the anxious group a significant but smaller correlation was found between IBRO and MOCI - R scores ($r = .38$, $p < .05$ (1 tailed)). Figure 7 shows scatterplots of the relationship between the IBRO and obsessive compulsive symptoms for both the OCD and anxious group.

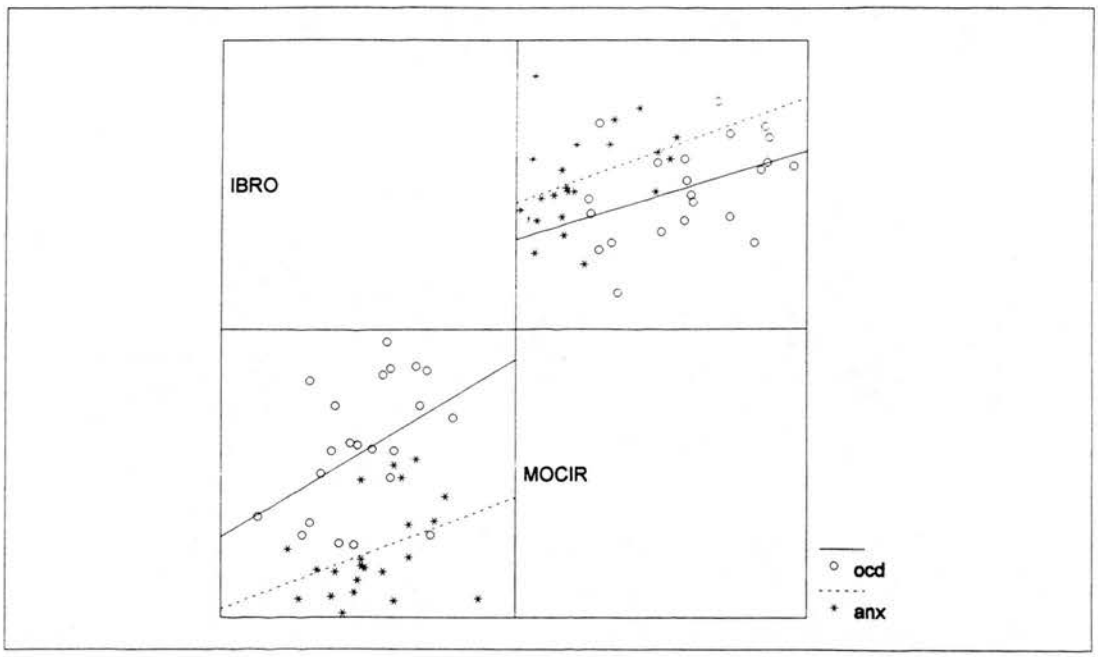

Figure 7: Scatterplot for scores on the Maudsley Obsessional Compulsive Inventory and the Inventory of Beliefs Related to Obsessions for the OCD and anxious group.

b. Individual subscales of the MOCI - R were examined to test the hypothesis that particular individual subscales would also be related to scores on the IBRO. A large correlation was expected between the obsessions subscale and the IBRO. Within the OCD group a significant relationship was found between only the hoarding subscale of the MOCI - R and the IBRO within the OCD group. No other subscales were correlated with IBRO scores (table 7). For the anxious group, 1 tailed Pearson product-moment correlations between the IBRO and the subscales of the MOCI - R revealed only one

significant correlation for the 'indecisiveness/perfectionism/concern over mistakes' subscale (see table 7).

IBRO correlations with	OCD		ANXIOUS	
Subscales of MOCI - R	**r**	**p**	**r**	**p**
checking	.30	.08	.28	.11
contamination	-.06	.39	.26	.12
hoarding	.41	< .05	.04	.43
indecisiveness/perfectionism/concern	.31	.07	.48	< .05
obsessions	.33	.06	.18	.21
routine/counting/slow	.32	.06	.32	.07

Table 7: 1 tailed Pearson product-moment correlations between the Inventory of Beliefs Related to Obsessions and subscales of the Maudsley Obsessional Compulsive Inventory - Revised within the OCD and anxious group.

c. The relationship between cognitive vulnerability and symptoms of anxiety was also examined. 1 tailed Pearson product-moment correlations were conducted for scores on the BAI and sociotropy and autonomy. Within the anxious group a significant correlation was found for sociotropy ($r = .57$, $p < .005$) but not autonomy ($r = .33$, $p = .07$). For the OCD group, 2 tailed correlations found no significant correlations for sociotropy or autonomy and BAI scores ($r = .30$, $p = .16$; $r = .17$, $p = .43$).

Hypothesis 5. *Exploration of parental bonding in anxiety and OCD - the contribution of 'affectionless control' and the greater contribution of overprotection in OCD.*

Data for the PBI was incomplete. Maternal bonding was not completed for two participants (one OCD, one anxious) and three participants did not complete the inventory for paternal bonding (one OCD, two anxious). These participants reported that they had had no contact with that parent during childhood, for varying reasons. These cases were included in the analysis as missing data rather than attributing zero scores.

a. It was hypothesised that a proportion of participants from both groups would fall into the 'affectionless control' category, indicating high overprotection and low care. Figures 8a and 8b below show the distribution of scores for maternal and paternal care and overprotection as measured by the PBI for the OCD and anxious groups. Parker et al (1979) provided means for maternal and paternal care and overprotection scores based on a sample of 410 normal participants. In figures 8a and 8b these means have been used to

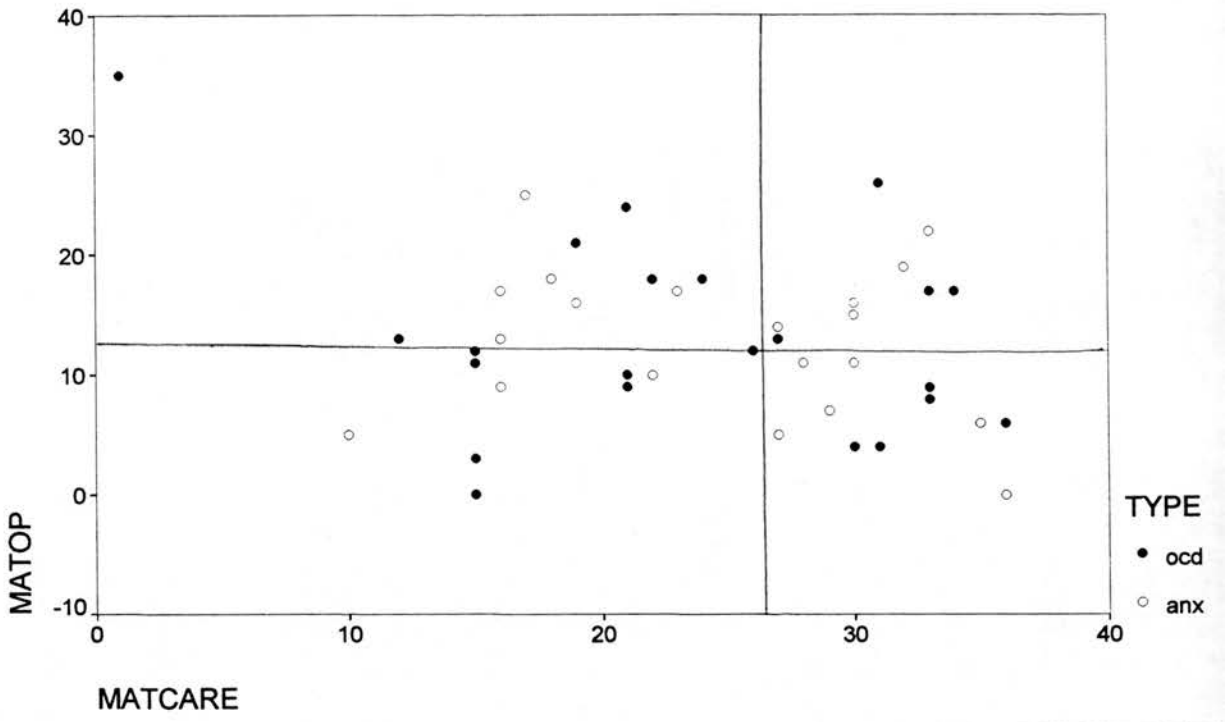

Figure 8a: Distribution of scores for maternal bonding in the OCD and anxious groups. Crossing axes represent normal population means.

divide the distribution of scores into the 4 categories of affectionless control, affectionate constraint, absent/weak bonding and optimal bonding. For maternal bonding (Fig 8a) it can be seen that participants do not fall into any particular category, although more participants fall into the low care categories. Similarly for paternal scores (Fig 8b), no one clear category emerges, but participants more clearly tend to fall into the low care

categories compared to the maternal scores. Paternal overprotection tends to be generally lower than maternal overprotection. Table 8 shows the mean scores in each group for maternal and paternal care and overprotection.

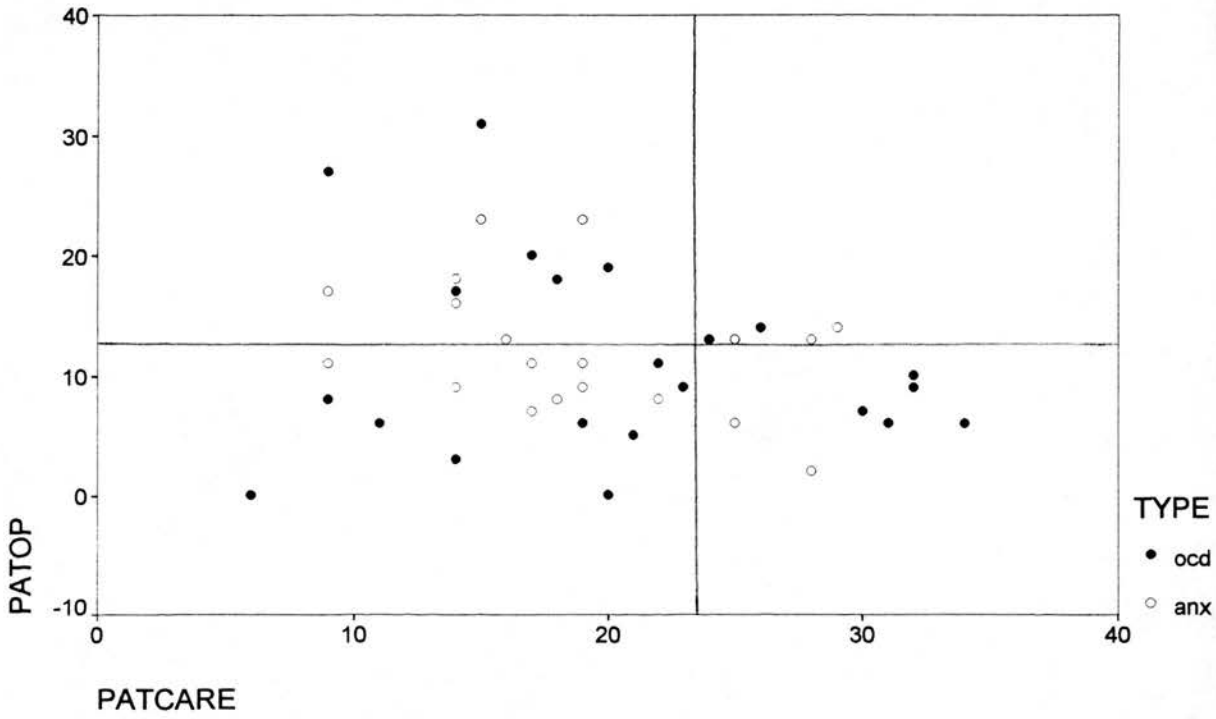

Figure 8b: Distribution of scores for paternal bonding in the OCD and anxious groups. Crossing axes represent normal population means.

Parental Bonding Instrument	Mean	Standard Dev.	Range
OCD group			
maternal care	23.41	8.94	1 - 36
maternal overprotection	13.18	8.37	0 - 35
paternal care	20.32	8.16	6 -34
paternal overprotection	11.14	8.09	0 - 31
ANXIOUS group			
maternal care	24.24	7.62	10 - 36
maternal overprotection	12.76	6.15	0 - 25
paternal care	18.79	6.01	9 - 29
paternal overprotection	12.21	5.47	2 - 32

Table 8: Means, standard deviations and range for scores on the Parental Bonding Instrument for the OCD and anxious group.

Parker et al (1979) referred to a fifth category of 'average bonding' (statistically defined). Average bonding would refer to scores which fall close to the mid-points of the crossing axes. Of particular interest then are the participants who most clearly fall into the 'affectionless control' quadrant. For maternal bonding, one participant from the OCD group reported scores which clearly demonstrate 'affectionless control'. For paternal scores, two participants from the OCD group also stand out as clearly falling into the 'affectionless control' category, although in this case, their scores are not as easily distinguished from the remaining participant's scores as is the case in maternal bonding. Appendix 2 provides a qualitative description and individual scores for these three participants.

b. It was further hypothesised that high overprotection as measured by the PBI would be more relevant to OCD than low care. It was not necessary to control for each variable in the analyses as overprotection and care scores were not significantly correlated within the OCD group or anxious group (for OCD group $r = -.29$, $p = .20$ for maternal and $r = -.18$, $p = .41$ for paternal; for anxious group $r = -.16$, $p = .49$ for maternal and $r = -.35$, $p = .14$ for paternal). Within the OCD group, one tailed Pearson product-moment correlations showed no association between scores on the MOCI - R and either maternal or paternal care scores (see table 10). Similarly, no relationship was found between maternal or paternal overprotection and MOCI - R scores (table 10). As no relationships were found, it was not possible to compare size of correlations as planned. Within the anxious group, the same series of correlations was conducted. No relationship was found between obsessionality (as measured by the MOCI - R) and maternal or paternal care or overprotection (see table 10)

Hypothesis 6. *The relationship between early experience and personality style/cognitive vulnerability to OCD.*

a. It was predicted that a positive relationship would be found between scores on the IBRO and overprotection and a negative correlation between care and IBRO scores. Within the OCD group, the relationship between scores on the IBRO and scores on the PBI were examined. 1 tailed Pearson product-moment correlations showed that only maternal care

was significantly but weakly correlated with IBRO scores ($r = .33$, $p < .05$) but the correlation was positive and not negative. 1 tailed correlations were not significant for paternal care or maternal and paternal overprotection (see table 9) ($r = .13$, $p = .28$; $r = .32$, $p = .08$; $r = .18$, $p = .21$). Within the anxious group, no relationships were found between IBRO and PBI scores (see table 9).

Correlations OCD GROUP	**r**	**p * = signif**	**predicted direction**
IBRO with		(1 tailed)	
Maternal care	.37	< .05*	no
paternal care	.13	.28	no
maternal overprotection	.32	.08	yes
paternal overprotection	.18	.22	yes
SOCIOTROPY with		(2 tailed)	
maternal care	-.29	.19	yes
paternal care	-.17	.46	yes
maternal overprotection	.19	.40	yes
paternal overprotection	-.14	.53	no
AUTONOMY with		(2 tailed)	
maternal care	-.16	.48	yes
paternal care	-.23	.31	yes
maternal overprotection	.49	< .05*	yes
paternal overprotection	.21	.36	yes

Correlations ANXIOUS GROUP	**r**	**p**	**predicted direction**
IBRO with		(1 tailed)	
maternal care	.26	.12	no
paternal care	.28	.12	no
maternal overprotection	.02	.47	yes
paternal overprotection	-.03	.46	no
SOCIOTROPY with		(2 tailed)	
maternal care	-.18	.73	yes
paternal care	.27	.27	no
maternal overprotection	-.19	.40	no
paternal overprotection	-.25	.30	no
AUTONOMY with		(2 tailed)	
maternal care	-.06	.79	yes
paternal care	.16	.52	no
maternal overprotection	-.07	.76	no
paternal overprotection	-.30	.22	no

Table 9: Pearson's correlations within the OCD and anxious group between scores on the Parental Bonding Instrument and the Inventory of Beliefs Related to Obsessions and the sociotropy and autonomy constructs of the Personal Style Inventory.

b. It was further hypothesised that relationships would be found between scores on the PSI and the PBI, although some non-linearity was expected. A further series of Pearson product-moment correlations (two tailed) was calculated for sociotropy, autonomy and parental bonding. Within the OCD group, no significant correlations were found between autonomy or sociotropy and maternal care, paternal care or paternal overprotection (see table 9). A significant positive correlation was found between autonomy and maternal overprotection ($r = .49$, $p < .05$). No correlations were found within the anxious group. It was hypothesised that some non-linearity may have been found in relation to parenting and cognitive vulnerability. Figures 9a and 9b show the scatterplot of scores on the PBI and sociotropy and autonomy. It can be seen that no pattern of non-linearity is emerging.

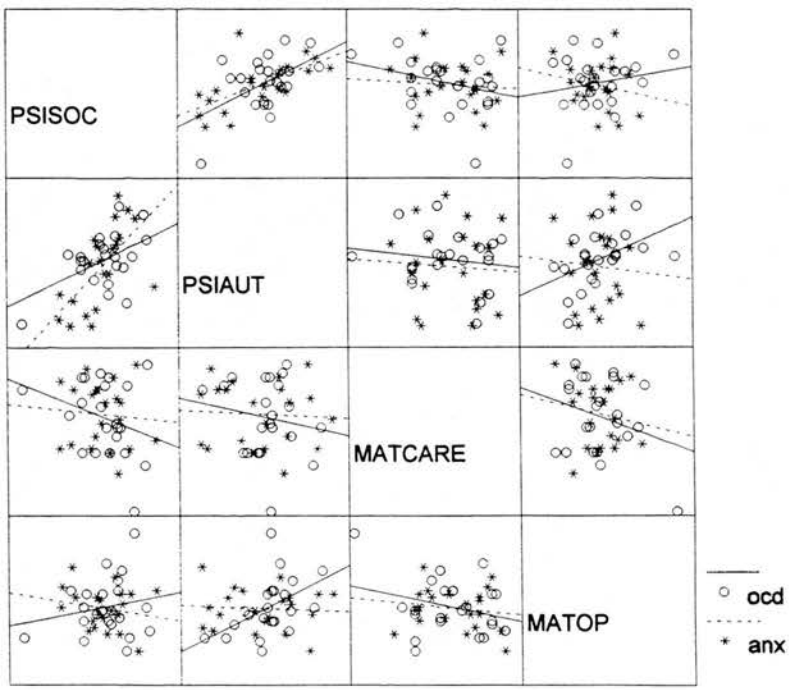

Figure 9a: Scatterplot matrix for sociotropy and autonomy with maternal care and overprotection in the OCD and anxious group.

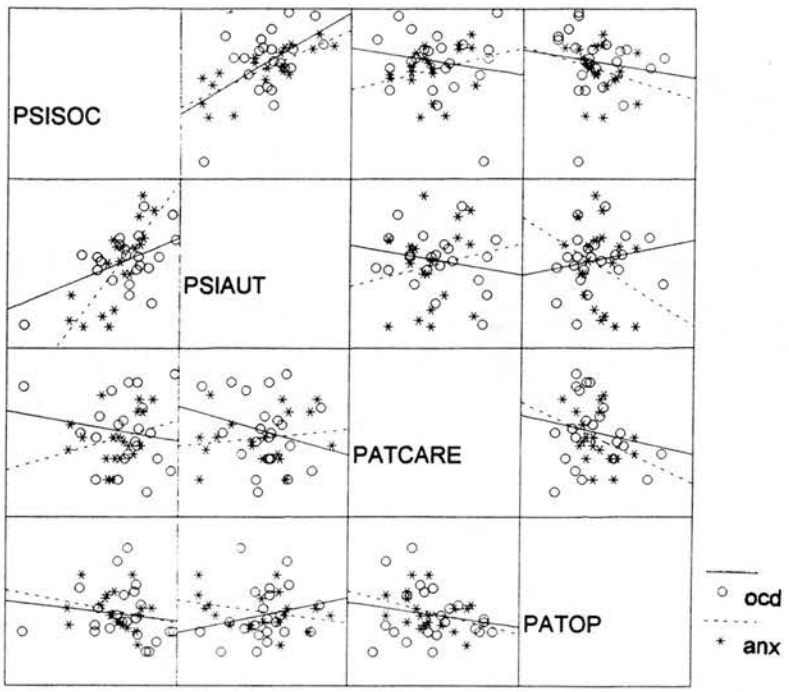

Figure 9b: Scatterplot matrix for sociotropy and autonomy with paternal care and overprotection in the OCD and anxious group.

Hypothesis 7. *The relationship between parenting experiences and adult symptoms of OCD and anxiety and the mediating role of personality style and dysfunctional beliefs.*

It was hypothesised that early experience should be linked to symptomatology in adult life through the mediating influence of personality style and cognitive vulnerabilities, as measured by the IBRO and PSI. Pearson product-moment correlations (1 tailed) have already been conducted within the OCD and anxious groups between scores on the PBI and the MOCI - R (see results for hypothesis 5b). No significant correlations were found (table 10). This result did not warrant the planned regression analysis to investigate the mediating role of dysfunctional assumptions/belief measures. The hypothesis also proposed to look at the relationship between anxiety scores (BAI) and adverse early experience and dysfunctional beliefs. 1 tailed Pearson product-moment correlations were conducted for scores on the PBI and the BAI in both the OCD and anxious group. No

correlations were found (table 10), which again prevented the planned regression analysis to assess the mediating role of cognitive vulnerability.

Correlations **OCD GROUP**	**r**	**p**
maternal care with:		
MOCI - R	-.04	.42
BAI	.06	.40
maternal overprotection with:		
MOCI - R	.13	.29
BAI	.16	.24
paternal care with:		
MOCI - R	-.08	.36
BAI	.03	.44
paternal overprotection with:		
MOCI - R	-.14	.26
BAI	.09	.35

ANXIOUS GROUP	**r**	**p**
maternal care with:		
MOCI - R	.03	.46
BAI	.19	.19
maternal overprotection with:		
MOCI - R	-.11	.33
BAI	-.06	.41
paternal care with:		
MOCI - R	-.05	.42
BAI	.19	.22
paternal overprotection with:		
MOCI - R	-.02	.48
BAI	.27	.13

Table 10: 1 tailed Pearson product-moment correlations between scores on the Maudsley Obsessional Compulsive Inventory - Revised and the Parental Bonding Instrument and scores on the Beck Anxiety Inventory and the Parental Bonding Instrument for the OCD and anxious group. No significant correlations found.

DISCUSSION

The following section will critically discuss the results found in the current study. Methodological shortcomings will then be highlighted before a summary of the main findings is given and conclusions are made. Recommendations for further research are discussed.

Critical Examination of Findings

The first hypothesis predicted that the OCD group would score significantly higher on the IBRO than the anxious control group. No significant difference was found between groups. This is a surprising finding, given that the measure was designed to highlight dysfunctional beliefs specific to OCD and in particular, the main belief domains concluded from the OC Cognitions Working Group review of measures (1997). In the development of the scale, Freeston et al (1993) conducted a number of studies to examine the properties of the scale. The majority of these involved non-clinical samples, with a mean score on the scale reported as 65.8 (range 35 - 90). A comparison of an OCD group (n = 14) and a matched non-clinical group (n = 14) did find a significant difference between scores, with the OCD group scoring higher than controls (mean of 75.56 compared to 59.20). It was concluded that the scale was measuring extreme beliefs specific to OCD. However, as the control group was non-clinical, perhaps the only conclusion that could be made was that *compared to a normal population* the dysfunctional assumptions measured by the scale were specific to an OCD group. The present study has demonstrated that when comparing beliefs between an OCD and clinical matched anxiety group, the dysfunctional assumptions measured by the scale did not appear to be specific to OCD. It may be that the assumptions are present in a range of anxiety disorders. The results indicate that care must be taken in concluding about specific OCD cognitive vulnerabilities that may in fact be found in a wide range of disorders. Freeston (1997, personal communication) has used scores on the IBRO as an indication of change in thinking style for 22 ruminators receiving cognitive treatment for obsessions. He reported a reduction in IBRO means from 70.6 pre-treatment to 56.6 post-treatment and 53.1 at 56 month follow-up, concluding that the

measure is sensitive to treatment change. It may be that this is the case, but that changes in scores on the measure as a result of treatment reflect changes in more general cognitive biases in psychopathology and not necessarily biases specific to OCD. Further research is needed to examine whether the IBRO can highlight the unique contribution of specific cognitive vulnerabilities in OCD, or is simply measuring generic beliefs in psychiatric patients.

The development of the IBRO included a component analysis which revealed three main dimensions: dysfunctional responsibility: overestimation of threat: and intolerance of uncertainty. It was decided that as there was no difference between total scores on the IBRO between groups, separate analysis on the individual subscales was not warranted. Furthermore, the inventory's author has not recommended separate analysis of the subscales (Freeston, 1997, personal communication).

It should be acknowledged that some methodological problems may have influenced the above finding. A recent review of assessment of cognitive vulnerability in OCD (Obsessive Compulsive Cognitions Working Group, 1997) discussed the advantages and disadvantages of priming participants before assessing cognitive biases when using a self-report format. Priming refers to including a definition and examples of intrusive and obsessional thoughts before participants complete the questionnaire, to distinguish obsessions from worry, cognitions associated with anxiety or even pleasurable ideas. The authors did not reach any conclusion about whether priming should be used. In the current study, it was felt that priming for the IBRO could have been advantageous and may have resulted in more distinction between groups. This is due to the fact that the majority of items on the scale are general, for example "uncertainty should not disturb", "loss is always a terrible thing" or refer to assumptions related to responsibility, blame, neutralising and thought action fusion, where priming may not have affected responses. However, for the items which refer to "thoughts", it is probable that participants in the anxious group were responding in relation to their worrying thoughts and negative automatic thoughts related to anxiety. The possibility of this is increased given that all participants in the anxious group were receiving cognitive behavioural treatment for

anxiety disorders. While some had not been in treatment for long, the majority would have been introduced to the idea of the role of cognitions in anxiety. Items on the scale such as "thoughts are in themselves harmless", "not being able to control thoughts will harm no one" and "enduring unpleasant thoughts without doing anything is dangerous for the person who has them" may have been responded to in the light of understanding of the effects of thoughts in anxiety and therefore constituted a bias in responding. A further observation is that participants in both groups tended to report some confusion about items of the scale and difficulty in responding. This seemed to be related to both the generality of some items as well as complicated item wording, often involving the use of double negatives. Priming may have reduced this confusion by providing a clear focus for responding.

For the second hypothesis, related to dysfunctional thinking in pure obsessionals, it was not possible to apply statistical tests. The brief case description provided in Appendix 1 illustrated one example of cognitive bias in pure obsessions, but it is not possible to draw any firm conclusions from the case. This case served to highlight the issue of heterogeneity within the OCD population, which will be discussed more fully later.

The third hypothesis examined the constructs of sociotropy and autonomy (as measured by the PSI). It was found that the OCD and anxious groups did not differ significantly for scores on either sociotropy or autonomy. Although the mean score was slightly higher in the OCD group on both measures, the range and standard deviation of scores meant that differences between the constructs failed to reach significance. The further examination of the individual subscales of the PSI between groups confirmed that the anxious and OCD groups did not differ in their reports of sociotropic or autonomous concerns (Figure 6 , Table 5).

Reported norms for the PSI (Robins et al, 1994) show that the means within the OCD and anxious group were higher than in the normal population. For a sample of non-clinical students (n = 411) mean sociotropy score was 95.8. In the current study, this compares to means of 108 and 106 in the OCD and anxious group respectively. For autonomy, normal

population mean was 82.6 compared to 91.35 for the OCD group and 88.55 in the anxious group. The PSI is a recently developed scale, and to my knowledge no studies have used the scale to examine the constructs in depression. The development of the scale included mean scores for a group of depressed patients, but scores related to the original 60 item version of the scale (Robins et al, 1994). In order to allow some comparison, the mean scores of 127.7 for sociotropy and 117.3 for autonomy (n = 50) on this original scale would be equivalent to approximate scores of 101 for sociotropy and 94 for autonomy on the revised 48 item scale. Unpublished mean scores for a small group of depressed patients on the revised inventory (n = 10) were 110.7 for sociotropy and 106 for autonomy (Charlton, 1997, personal communication). These means in a depressed population are very similar to the mean scores found in both the OCD and anxious groups in the current study, suggesting that sociotropy and autonomy may be specific vulnerabilities in anxiety as well as depressive disorders.

The results would suggest that the broad personality characteristics of sociotropy and autonomy may be relevant and clinically important in anxiety disorders and OCD, but may not be able to distinguish between anxiety disorders. Further examination of personality constructs may be a fruitful area of further investigation in OCD research, to examine vulnerability to the disorder. In research into depression, various authors have investigated the personality-event congruence hypothesis: that specific events increase vulnerability to depression dependent on the underlying personality construct. For example, in sociotropic individuals, vulnerability to the onset of depression has been related to life events involving social loss or rejection, while events involving failure or loss of control have been related to vulnerability to depression in autonomous individuals (Segal, Shaw, Vella & Katz, 1992). While results in this area have been mixed, it may be that a similar pattern is operating in anxiety and OCD, whereby vulnerability to the disorders is related to these underlying personality constructs. Different types of significant life event could similarly distinguish between the onset of OCD or anxiety in sociotropic and autonomous individuals. For example, becoming independent in a new home has been related to the development of OCD symptoms in individuals due to the link with responsibility schemata (Rachman, 1993). It may be that this life event involving increase in responsibility may

increase vulnerability to the onset of symptoms due to more general underlying constructs such as autonomy. While this investigation is beyond the scope of the present study it is an area worthy of further study.

In relation to the PSI it had also been predicted that there would be a stronger association between sociotropy and OCD than autonomy. This hypothesis was based on closer examination of the individual subscales of the PSI. It was found that within the OCD group, OCD symptomatology was not related to either construct and therefore it was not possible to examine which construct had the stronger relationship. However, in the anxious group a strong and significant correlation was found between OCD symptomatology and sociotropy and autonomy. A trend towards a stronger relationship between sociotropy and OCD symptomatology than autonomy was found in the anxious group. A statistical explanation of these findings was possible: if there was little variance on MOCI - R scores within the OCD group, this would produce a ceiling effect. However closer analysis of the data showed that the range of scores and standard deviation on the MOCI - R in the OCD group were greater than or equal to the anxious group, indicating that the finding seems to reflect a real effect. It could be concluded that the constructs of sociotropy and autonomy are relevant to OCD, due to the clear relationship found between PSI scores and MOCI - R scores. However, the data for the OCD group found no relationship between these measures. This contradictory finding is an important one in relation to the use of non-clinical participants and correlational analyses based on symptom scores in OCD research. In the current study, the separate analyses which allowed a comparison between a clinical OCD group and anxious group as well as correlations enables us to conclude that *obsessionality as a trait* may be related to the broader constructs of sociotropy and autonomy, but that these constructs do not appear to be specific to the *disorder* of OCD. The issue of drawing conclusions from correlational analyses in which results may be related to obsessionality as opposed to OCD will be referred to and discussed more fully later.

Hypothesis 4 aimed to examine the relationship between symptomatology in OCD and anxiety and cognitive vulnerability. This involved correlations between the MOCI - R,

BAI, IBRO and PSI in both groups. Correlations for obsessionality and sociotropy and autonomy have already been discussed above. For anxiety symptoms and the constructs of sociotropy and autonomy, no relationship was found in the OCD group which was not a surprising finding given that we would not necessarily expect to find particular relationships related to anxiety symptoms in an OCD population. For the anxious group, a significant correlation was found between BAI scores and sociotropy but not autonomy. There is some evidence to suggest that level of symptomatology is related to cognitive vulnerability, but the current results do not indicate this universally or conclusively.

In looking at OCD symptomatology and cognitive vulnerability in the form of dysfunctional beliefs about obsessions, scores on the MOCI - R and the IBRO were analysed to determine if the greater number or strength of OCD symptoms were related to greater dysfunctional beliefs. Although a previous hypothesis had found that there was no significant difference between scores on the IBRO between the OCD and anxious group, the correlational analysis showed that in both groups there was a significant relationship between symptomatology and cognitive vulnerability. This finding would seem to support the view that the IBRO may be sensitive to obsessionality as a trait, but that firm conclusions about the unique contribution of dysfunctional thinking about obsessions to OCD cannot be made. In support of this view, the correlational analysis between the subscales of the MOCI - R and the IBRO did not produce the predicted results. In the OCD group, the 'obsessions' subscale was predicted to be most strongly related to the IBRO, but no correlation was found and only the hoarding subscale correlated with IBRO scores. Within the anxious group, a significant correlation was found for IBRO score and the indecisiveness/perfection/concern over mistakes subscale. This finding again highlights the need for caution in interpreting findings about OCD from a non-OCD group. It is interesting that within the anxious group, the subscale of the MOCI - R which is arguably the most general and least symptom related, correlated with scores on an inventory which has already been criticised as being too general, with items which could produce strong belief in an anxious population.

The influence of early experience was examined in hypothesis 5. The distribution of scores on the PBI did not illustrate many clear patterns emerging in terms of identifying specific categories of parenting style associated with OCD or anxiety, although it was noted that more participants fell into the low care categories (as defined with reference to the normal population). High overprotection was not evident from the distribution of scores. Correlational analyses between scores on the MOCI - R and the PBI did not reveal any relationships between OCD symptomatology and care or overprotection in either the OCD or anxious group. These findings are not particularly surprising, as it had been hypothesised that only a *proportion* of participants would fall into the 'affectionless control' category. Early experience has been linked to a number of psychopathologies, but that link is not proposed to be absolute. In OCD while we might expect to find certain dysfunctional developmental experiences in some patients which do seem to suggest a particular pattern related to adult pathology, it is not proposed that this pattern is necessary or indeed sufficient for their development in all patients. Similarly, dysfunctional patterns of parenting in childhood will not necessarily result in psychopathology in later life. Particularly given the small sample size in the current study, it was unlikely that a clear pattern on parenting styles would emerge. Furthermore, parenting style is only one of many influences that could account for cognitive vulnerability to psychopathology. The possibility of biases in responding should also be considered in discussing the results of the PBI analysis. Although studies have shown that participants' recall of parenting received does appear to be a valid measure of actual parenting (Parker, 1990) and not affected by mood (Gerlsma et al, 1994), it may be that in OCD, thinking style and schemata could influence participants' responding. Specifically, schemata related to responsibility and thought action fusion may prevent participants from portraying their parents in a negative, or at least less than positive light.

Other studies which have examined parenting style and anxiety and OCD using the PBI which were discussed in the introduction have concluded that 'affectionless control' at least to some extent appears to be relevant to OCD and anxiety disorders. Silove et al (1991) in examining parenting in patients with generalised anxiety disorder (GAD) and panic disorder (PD) found that 'affectionless control' seemed to be associated with GAD

while 'affectionate constraint' was associated with PD. This result has some implications for results of the current study, where the anxious control group was a mixed group of panic and generalised anxiety patients, so it may be that the group was more likely to show a broader pattern of responding on the PBI. However, the authors took a liberal approach to analysing their data, by using the mean scores provided by Parker et al (1979) as cut-offs to determine categorisation of parental bonding to allow statistical comparison. In this respect, they were ignoring the 5th category of average bonding described by Parker et al (1979). In the current study, the more conservative method of providing a qualitative description of categorisation and using correlational analysis was used, which should yield more valid results.

Research specific to OCD and the PBI has been limited and similarly problematic and was examined in detail in the introduction. Cavedo & Parker (1994) found using non-clinical participants, that high overprotection scores were related to higher scores on the OCD measures (MOCI, Hodgson & Rachman, 1977; the Leyton Obsessional Inventory, Murray, Cooper & Smith, 1979), but that results were less consistent for care scores. However, they noted that "high levels of such [obsessive compulsive] symptoms should not of necessity be regarded as equating with OCD, a more categorical disorder and not necessarily with the same pathogenesis." (p 81) Given that in the current study, correlational analysis within the anxious group has produced significant results when no relationships were found within the OCD group (see results for hypothesis 3), their caution in drawing firm conclusions from their findings should be heeded. In the more comprehensive study using the PBI, reported by Frost et al, (1994), differences between non-clinical and subclinical groups were found for maternal care and overprotection and paternal overprotection. The authors did not attempt to categorise scores into parental-child bonding dimensions. It was again difficult to make firm conclusions about the influence of parenting given that the study used a 'subclinical' OCD group selected by cut-offs on three measures of OCD symptomatology. Separate analyses were conducted for two samples, which again made interpretation difficult because results differed between the two groups.

In conclusion, the current study did not find evidence to support the contribution of low care or high overprotection to OCD. It may be that the small sample sizes can in part account for this finding or that responding in the OCD group was influenced by OCD related schemata as discussed. However, given that previous research has suffered from the methodological problems noted and did not produce robust findings, it may be that OCD is not linked to any specific parenting style. 'Affectionless control' may yet be associated with OCD but may not be necessary or sufficient for its development. The heterogeneity of an OCD population, which will be discussed in detail later could also make it difficult to identify patterns of parenting style related to OCD.

The sixth hypothesis continued to examine early experience by investigating the relationship between scores on the PBI and the IBRO as a measure of OCD related dysfunctional thinking. In the current study, it has already been concluded that beliefs about obsessions and the other cognitive vulnerabilities measured by the IBRO were not specific to OCD, but that a positive relationship was found between OCD symptomatology and the IBRO in the OCD and anxious group. As no relationship was found between OCD symptomatology and dimensions of the PBI, it would have been unlikely to have found significant correlations between the PBI and the IBRO, although the correlation between OCD symptoms and the IBRO would allow the possibility of such a relationship. Only one significant correlation was found, between maternal care and the IBRO in the OCD group. The correlation was in the opposite direction to that predicted, suggesting that high care was associated with greater dysfunctional beliefs about obsessions. It is difficult to interpret this finding, but it may be that if reflects the possible bias in responding referred to earlier: that is that OCD participants with more extreme cognitive biases (as measured by the IBRO) were consequently more influenced into responding on the PBI in a positive way, so that care scores were artificially heightened.

The relationship between the broader constructs of sociotropy and autonomy and the PBI was also examined. Only one significant correlation was found for autonomy and maternal overprotection in the OCD group. Interpretation of this result must be cautious given that a similar relationship was not found in the anxious group, and indeed no correlations were

found for sociotropy or for other dimensions of the PBI with autonomy. However, the significant correlation between autonomy and maternal overprotection could be understood in terms of overprotection, rather than resulting in dependency, producing the opposite effect of the individual developing a personality style more synonymous with 'autonomous achievement'.

The final hypothesis proposed to link parenting experience to symptomatology through the mediating influence of dysfunctional beliefs and cognitive vulnerability as measured by the IBRO and PSI. As already discussed no relationship was found between OCD symptomatology and early experience in either the OCD or anxious group. Similarly, no correlations were found between anxiety symptoms (BAI) and early experience. In both cases it was therefore impossible to conduct the planned regression analysis. The lack of a relationship between scores on the MOCI - R and the PBI has already been discussed in relation to the previous hypothesis. It was similarly surprising on one level that no relationship was found between early experience and symptoms of anxiety. Research which has examined the relationship between anxiety and the PBI has found identifiable patterns of parenting associated with the disorder. It may be that the distinction noted by Silove et al (1991) between parenting in GAD and PD could account for the lack of a clear relationship emerging in the mixed anxiety control group used in the current study. The other explanations discussed earlier in relation to the OCD would also apply in the current case: the small sample size and the acknowledgment that adverse early experience is not a necessary or sufficient factor in determining the presence or absence of psychopathology in adult life.

Overall, it was disappointing that the full analysis planned for the final hypothesis was not warranted given the lack of relationships found. The research had hoped to examine and introduce a more holistic model of OCD which incorporated early experience, personality style and cognitive vulnerability. The results have not supported this notion, although it should be noted that sample sizes are small and a more comprehensive replication with increased numbers may yet produce evidence to support such a model. Despite the lack of significant results in relation to this final hypothesis, the study did highlight some

interesting findings, which will be discussed more fully after an examination of the methodological shortcomings of the study.

Consideration of Methodological Shortcomings

Some methodological problems have already been discussed in relation to the results of specific hypotheses, for example the use of priming when administering the IBRO. More general methodological consideration are discussed in this section.

An important item for discussion is the use of a scale such as the MOCI - R as an indication of the number and/or severity of OCD symptoms. The original MOCI was developed specifically to identify *symptoms* of OCD rather than measure obsessionality, and although the revised version has maintained this to some extent, some questions are general and not symptom focused. The generality of some items could have implications for the possibility that within the anxious group, scores on the MOCI - R were reflecting obsessionality rather than symptoms. This would be important in correlational analysis, as the hypotheses of the current study aimed to study characteristics of OCD and not just of obsessionality.

A further consideration in relation to the MOCI - R is whether the scale truly reflects the intensity of OCD. It was observed during the administration of the scale that the total score obtained did not always seem to reflect the severity or intensity of the problems for certain patients: that is that a high score on the MOCI - R did not necessarily tally with a patient who was more incapacitated by the disorder and vice versa. For example, the patient described in Appendix 1 scored 40 out of 208 on the MOCI - R. The range within the OCD group in the current study was 35 to 134, suggesting that compared to the other participants within the experimental group, he was not particularly symptomatic. As is described in Appendix 1, this participant was an in-patient whose obsessional thoughts were overwhelming and caused extreme distress and significantly interfered with normal functioning. He described the thoughts as being present all the time and was visibly

anxious and agitated throughout our meetings. Several sessions were required to complete the questionnaires due to the distress and anxiety he was experiencing. And yet he scored only 40 on the MOCI - R. This is explained in that the scale includes subscales to measure the main obsessional and compulsive symptoms. In the case of this participant, he had a limited number of symptoms, for example he did not have any compulsive behaviours. In fact, his symptoms amounted only to the repetitive thoughts about having harmed someone. As a result, he was not particularly symptomatic in terms of number of symptoms but the severity and intensity of the disorder had required in-patient treatment. While one could argue that this is an extreme case, it was observed with other participants that their MOCI - R score did not always reflect the severity or intensity of the disorder described during clinical interview. A large number of symptoms causing little distress and little interference may not be as severe a case of OCD as few symptoms that nevertheless result in immense distress and interruption to daily functioning.

If we accept that the measure of obsessionality used in the current study is worthy of the criticism described above, this has implications for the interpretation of results using correlational analysis. If the MOCI - R is not truly reflecting the extent of OCD in participants, then caution must be used in accepting both the disconfirmed as well as confirmed hypotheses. The use of scales such as the MOCI - R to measure obsessionality in non-clinical participants has even greater implications for the validity of results when using either correlational analysis or selecting 'subclinical' groups based on obsessionality scores. While it is accepted that correlational analyses are examining obsessionality as a trait rather that OCD, it may also be that the artificial classification of participants using self report symptom measures is not a reliable method. The concerns raised above about OCD measures is only one aspect of a general concern about the use of non-clinical participants in OCD research. A robust clinical distinction should be employed in further research to overcome these difficulties. A more detailed criticism of the use of non-clinical participants, particularly in the light of some of the findings of the current study will be made later.

Another consideration in the current study is the nature of the participant groups. Participants in the OCD group were recruited from Psychology and Psychiatry services, as being currently in treatment or having received treatment in the past. The majority had received some form of psychological intervention, with some subjects describing a cognitive element to treatment. Participants were not asked to expand on what this intervention had involved and their therapist was not asked about treatment content. It was possible therefore that participants had already been exposed to cognitive theories of OCD and had engaged in work related to this approach. This may have affected responses to particularly the IBRO, and may also have produced some shift in cognitive style, so that their belief systems had changed or become less extreme during the course of treatment. Indeed, one participant stated after completing the questionnaires that her responses would probably have been very different if the battery had been administered a year previously, before she had begun treatment. She recognised that her thinking style and beliefs had changed significantly over the course of treatment. In some cases therefore, results on the cognitive vulnerability measures in the OCD group may have been dampened by treatment. It should be noted that this may have been relevant for only a minority of participants. This issue also reflects some of the difficulties in recruiting clinical participants for research when the disorder to be studied is relatively rare, at least compared to disorders such as panic disorder or depression. In the current study it was noted that a total of 54 current or ex-patients from Psychology and Psychiatry services within a large population base were contacted, yielding only 26 participants, 3 or which were excluded from the analysis. It may have been beneficial to the study to recruit participants who had not received psychological intervention or were only undergoing assessment for psychological intervention, but one would have to question the practicalities of this method. In the current study, it is accepted that knowledge of cognitive theories or treatment could have been a confounding variable for a minority of participants.

Similar difficulties were evident in the anxious control group. Firstly, participants were again already receiving treatment for their anxiety disorder and the amount of intervention received varied. The possible influence of knowledge of cognitive theories of anxiety

disorders has already been discussed in relation to the possibility of biased responding on the IBRO within the anxious group. The mixed anxious group (patients with panic/agoraphobia and GAD) may also have confounded results, in that the OCD group was being compared with a heterogeneous control in terms of type of disorder. It has already been discussed that the PBI has distinguished between patients with GAD and those with PD (Silove et al, 1991). It may be that some of the measures used in the current study would distinguish between the individual anxiety disorders which made up the control group, making clear comparisons between the OCD and anxious group more difficult. A further consideration is that while no participant in the anxious group had received a diagnosis of OCD, a diagnostic interview was not conducted to determine the absence of OCD. In the majority of cases, it was clear from the MOCI - R score that there was no evidence of OCD, or indeed obsessive compulsive symptomatology. For a small minority of participants, their scores on the MOCI - R certainly indicated a level of obsessive compulsive symptomatology. Whether the symptoms would have merited a diagnosis of OCD was unclear, as this was not examined specifically, although as criteria for OCD involves more than just symptomatology, the possibility of a diagnosis of OCD in the anxious group is further reduced.

Heterogeneity within groups was not only specific to the anxious group. OCD is a disorder in which a range of obsessions and/or compulsions can be experienced. In the OCD group in the current study, table 2 illustrated that participants differed greatly in terms of the number and type of obsessions and compulsions reported. Previous research into OCD which has used clinical rather than subclinical groups has varied in terms of the specificity of the OCD participant. While some research has recruited an OCD group in a similar way to the current study, thereby forming a group of patients with a range of symptoms, other studies have selected patients with only one type of obsession or compulsion. This method has been employed where there was recognition that traits, early experience, or cognitive vulnerability may be different even within the OCD population. For example, Steketee et al's study (1995) which was detailed in the introduction, recruited separate experimental groups of 'washers' and 'checkers', based on a proposed theoretical distinction between parenting style associated with each symptom. In a treatment outcome

study, Ladouceur et al (1996) reported on cognitive treatment of OCD in patients with only checking rituals. Indeed the current study had aimed to recruit a pure obsessional group, (based on the narrow definition of a compulsive behaviour), in an attempt to investigate whether differences in cognitive vulnerability could account for the absence of compulsive behaviours. Because of the heterogeneity of the OCD population, it may be that clear patterns or specific underlying cognitive schemata will be difficult to find. This would suggest the need to investigate specific subgroups within OCD. From a practical point of view, this may be difficult as not only is clinical recruitment often difficult, but as we have seen, patients can also experience a range of symptoms, making it difficult to categorise them into subgroups. From a clinical point of view, subgrouping may be unsatisfactory, given the range of symptoms that some patients present with and difficulties in accepting whether results from one subgroup e.g. washers can be generalised to other subgroups of OCD.

The heterogeneity of the OCD population does not only limit itself to the type of symptoms experienced, but also extends to co-morbidity with other anxiety disorders and depression. Overlap and unclear distinctions between OCD and other diagnoses, particularly psychosis is a related problem. In the current study, the OCD group showed high levels of symptoms for both anxiety and depression. Mean BAI score was 20.39 with a range of 4 to 48. For the BDI scores ranged from 3 to 48 with a mean of 19.70. As these scores did not differ significantly from the anxious group, it had not been necessary to control for anxiety or depression in correlational analyses, and in comparative statistics, anxiety and depression should not have been a confounding variable. Although OCD has been confirmed as a distinct anxiety disorder (Crino & Andrews, 1996), the BAI and BDI scores in the current study illustrate that in cognitive research into OCD we may be measuring schemata and other cognitive vulnerabilities which are related to anxious and depressive vulnerability, and not purely to OCD. The inclusion of OCD as an anxiety disorder in itself is an indication that there are fundamental similarities between an OCD population and individuals with other forms of anxiety disorder. This means that an anxious control group is the best comparison group if we are to highlight factors specific to OCD and not to anxiety disorders in general. However, it also means that studies which

expect to find differences between groups, may not do so, as the variables measured may be anxiety but not OCD specific. In the current study, results for the OCD and anxious group comparison on the IBRO may be a reflection of this (bearing in mind the methodological problems discussed in relation to this finding). Previous research has similarly found that certain constructs were not distinguishable between an OCD and anxious population. For example, Frost & Steketee (1997) in their examination of perfectionism in OCD found that a clinical OCD and panic/agoraphobia group did not differ significantly for total perfectionism scores. This study is particularly interesting in that the authors noted that theirs was the first research which had attempted to examine perfectionism in *clinical* subjects. Previous research had used correlational analysis in non-clinical participants, using measures of obsessionality to correlate with perfectionism scores. As well as the concerns about this method which have already been discussed, the finding further highlights that certain traits, personality styles or schemata may be related to psychopathology or anxiety disorders in general but not necessarily be specific to OCD.

The distinction between OCD and delusional disorders is a further complication in OCD research which was relevant in the current study. Kozak & Foa (1994) examined the concepts of obsessions, overvalued ideas and delusions to determine how these concepts can be distinguished. Patient insight has been used as one form of distinction, in that a diagnosis of OCD requires that the individual can think rationally about their obsessions and recognise them as senseless or irrational. DSM IV criteria also states that the individual must recognise that the obsessional thoughts are a product of their own mind and are not imposed from without, as in psychotic disorders. It has been noted however that some patients with OCD do not recognise that their obsessions are senseless, and these have been described as overvalued ideas or delusions. This leads to the question of whether these patients can be considered psychotic. After a full examination of research which has investigated these concepts, Kozak & Foa (1993) concluded that "obsessive compulsive ideas cannot satisfactorily be dichotomised according to patients' insight, and that the notion of a continuum of strength of obsessive compulsive beliefs is more appropriate" (Kozak & Foa, 1994 p 343). Strength of obsessive compulsive belief has been viewed as ranging from full recognition of the senselessness of the thoughts to the

complete absence of recognition, and many studies have found a broad range of insight in diagnosed OCD patients (Foa & Kozak, 1993).

In the current study, this issue of a continuum of strength of belief in the obsessional thought was noted during the clinical interviews with patients in the OCD group. In particular, the patient who experienced pure obsessions was one case where the distinction between an obsessional thought and a delusion was not clear cut. As described in Appendix 1, he was able to recognise to some extent that the nature of his belief was unreasonable, and indeed that the incident which had clearly triggered the thoughts was unlikely to have caused the harm he feared it to have done. However, he was not certain of the senselessness of either of these factors. A diagnosis of OCD was appropriate, but again the heterogeneity of an OCD population was evident.

The overlap between OCD and psychosis was apparent in other individuals who participated in the study. While care was taken in ensuring that the criteria for OCD was fulfilled in all cases, (and indeed one participant was excluded on the grounds that his hoarding symptoms were in relation to a diagnosis of schizophrenia rather than OCD) the complication of a psychotic illness was relevant for two patients who participated in the study. Interestingly, one of these participants (participant 1 in Table 2), who had a previous diagnosis of manic depression, had an almost identical obsessional thought to that of the participant described above. In this case, the participant did engage in compulsive behaviours, but these were fairly limited, and it was the obsessions rather than the compulsions that disrupted functioning. Another patient (participant 9 in Table 2) had a previous diagnosis of schizophrenia. Research into the co-morbidity of OCD and schizophrenia has shown that rates of schizophrenia in OCD do not differ significantly from the general population (Rachman & Hodgson, 1980) and there does not seem to be a particular association of these disorders. Research has also found that OCD does not appear to be a precursor of schizophrenia, although a relatively high incidence of other psychoses have been found among obsessive compulsives (Goodwin, Guze & Robins, 1969). In the case of this participant, the diagnosis of schizophrenia had been made when the patient was 22, but obsessive compulsive symptoms appeared to have developed

unrelated to the schizophrenia at the age of approximately 29. It can be seen in table 2 that his symptoms, particularly the compulsions were classic symptomatology of OCD and care was taken to ensure that the obsessions were not psychotic in nature.

The examination of the heterogeneity of an OCD population given above, is an area which can only be touched on in the current research and is one that is of particular interest in OCD research. Its inclusion in the current paper is intended simply to point to the complications of participant recruitment in OCD research and to highlight that both in this and other studies which use clinical OCD patients, results may reflect the complexity of varying symptomatology, co-morbidity and overlap with delusional and psychotic disorders. The final section will provide a summary of the main findings of the study and the conclusions that can be drawn from them, particularly in relation to previous research conducted into OCD before discussing how research in this area can develop.

Summary of Main Findings

The current study did not support the unique contribution of specific dysfunctional thinking styles related to responsibility, overestimation of threat and intolerance of uncertainty (as measured by the IBRO) to OCD. The absence of a difference between the OCD and anxious group on this measure could have reflected methodological shortcomings in the study's design, or may indicate that dysfunctional thinking thought to be specific to OCD may be found in a range of anxiety disorders. The heterogeneity of both the anxious and OCD groups may also have contributed to the absence of a clear distinction between groups for the IBRO.

Influence of the constructs of sociotropy and autonomy were not different between the OCD and anxious group. The mean scores for both constructs suggest that they may be relevant in anxiety disorders, and support the view that sociotropic and autonomous concerns confer vulnerability to a range of psychopathologies. Correlational analysis examining OCD symptomatology and the PSI found no relationship in the OCD group.

However, significant correlations were found between OCD symptomatology and sociotropy and autonomy scores within the anxious group. Problems with the use of symptomatology measures in OCD research were discussed. It is suggested that correlational analyses using these measures may not be a reliable method of investigation. In particular, the conflicting finding in this case between the correlations in the OCD and anxious groups would indicate that correlational analyses may be measuring obsessionality as a trait rather than OCD. This finding has implications for the widespread use of non-clinical or subclinical participants in OCD research.

Evidence that studies may be identifying relationships in obsessionality rather than OCD was further supported by correlations conducted between obsessive compulsive symptoms scores and OCD related dysfunctional thinking. While no differences between scores on the IBRO were found between experimental and control groups, significant correlations were found between MOCI - R scores and the IBRO for both groups. There does seem to be a relationship between these measures, but its reliability is questioned due to concerns over the use of the MOCI - R as an adequate measure of OCD severity. The finding that the beliefs measured by the IBRO do not appear to be specific to OCD also reduces the impact of this finding.

The influence of early experience in terms of parenting produced mixed results. No clear pattern of parenting style emerged in the OCD or anxious group. No correlations were found for MOCI-R with care or overprotection in either group. These results were discussed in terms of the small sample size and a recognition that adverse early experience is not a necessary or sufficient factor in the development of adult psychopathology. Correlations for the PBI and dysfunctional thinking related to obsessions found only one significant correlation, between maternal care and IBRO scores in the OCD group. The direction of the correlation was the opposite to that predicted, making the finding difficult to interpret. On the PSI a significant correlation was found between autonomy and maternal overprotection in the OCD group.

The final series of hypotheses had intended to examine the mediating role of dysfunctional thinking in terms of the relationship between early experience and symptomatology. The absence of any relationships between dimensions of the PBI and either OCD or anxiety symptoms prevented the planned regression analysis and did not support the concept of an integrated model of OCD incorporating early experience and cognitive vulnerability.

Conclusions and Recommendations for Further Research

Some of the main conclusions that can be drawn from the current research relate to methodology in OCD research and point to the type of research that may prove to be most fruitful in future studies. One of the first conclusions to be made involves the use of non-clinical participants in OCD research. The critical review of this methodology given in the introduction highlighted the possible downfalls of such an approach. Results of the current study in part support the criticisms of this method. Some of the conflicting results found (particularly those related to hypothesis 3) indicated that correlations may be found between scores on symptom measures of OCD and other variables, but that comparison on those variables between a clinical OCD group and an appropriate control group may not reveal a significant difference. The study also found that correlations between OCD symptomatology and other variables were found within the anxious group but not in the OCD group. Research which used only non-clinical participants and correlational analyses might have concluded that there was a clear relationship between OCD and other variables based on this finding. The current study has shown that to accept such a conclusion is problematic, as similar correlations may not be found in an OCD group, which is the population of interest. This should lead us to question the validity of the research conducted to date which has used correlational analyses in non-clinical populations to make conclusions about OCD.

The distinction between obsessionality as a trait and OCD as a disorder has been highlighted in the current study. Findings have supported the idea that patterns and features found in obsessionality may not be found in OCD. Previous research has not

addressed this issue sufficiently, as very few studies have been able to demonstrate the dichotomy between obsessionality and OCD because they have not employed clinical OCD participants. Where clinical participants have been used, the control group is often not appropriate (e.g. Freeston et al, 1994). Future research needs to use clinical groups of OCD patients to ensure that constructs relevant to OCD and not just to obsessionality as a trait are being measured. An appropriate clinical control group should also be used to determine specificity to OCD and not to anxiety disorders in general. The use of symptom measures of OCD in both clinical and non-clinical correlational analyses has been discussed in detail previously, so will not be repeated here. However, this potential problem in reflecting severity or intensity of OCD is relevant to the discussion of correlational analyses in OCD research and would support the proposal that future research should aim to investigate OCD by comparing clinical OCD and anxious groups rather than relying solely on correlational analyses.

The heterogeneity of the OCD population is a problem which can complicate research in this field. Various suggestions were made previously including the subcategorisation of OCD groups, but the difficulties with this method were highlighted. Research which attempts to distinguish between groups of participants may need to accept the limitations of this approach. In the current study, it was felt that particularly analyses involving the PBI may have suffered from the heterogeneity of the groups studied, particularly the OCD group. The final hypothesis relating to the possibility of developing a more integrated model of OCD which incorporated early experience, personality style and cognitive vulnerability was not supported in the current study, possibly due to the small sample size and therefore more significant contribution of group heterogeneity. Despite the absence of significant results, the aim of trying to integrate theories of OCD would still appear a valid and necessary one. However, attempting to do this using a similar methodology to the one employed in the current paper would require a study on a much larger scale. An alternative methodology would be to examine an integrated model of OCD using individual case studies. The multifaceted model of OCD proposed by Sookman et al (1994) which was discussed in the introduction could be considered the first real attempt to develop a comprehensive model of OCD, which specifically examined early experience

and schemata. The authors pointed out that research which examines such a model must acknowledge the need to look at schemata on an individualised basis. They therefore chose to illustrate the model by using single case studies rather than attempting to identify specific patterns of early experience or thinking style. What seems to be emerging is that while a model can provide a framework to help direct treatment of OCD on an individualised basis, it may not be that specific patterns of adverse early experience or types of dysfunctional thinking style can be reliably detected in a heterogeneous OCD groups.

In conclusion, while many of the hypotheses in the current study were disconfirmed, some interesting and important findings were made, which could be viewed as a starting point for further research aiming to broaden current cognitive accounts of OCD. The development of a more comprehensive model of OCD which aims to incorporate schemata, personality style and early experience is an exciting possibility which should be pursued. However, the current paper has identified the need for further investigations in OCD to consider many of the methodological problems that are inherent in OCD research but that have been previously overlooked.

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APPENDICES

APPENDIX 1 PURE OBSESSIONS

Case History of Participant with Pure Obsessions

(participant 11 in Table 2, Results section)

The patient 'RB' was the only participant recruited who experienced pure obsessions, i.e. with no overt or covert compulsive behaviours. He was a 30 year old man, with an 18 year history of obsessive compulsive difficulties.

RB was an in patient at the time of assessment. He had had a number of previous admissions in the preceding 7 years. He reported having had contact with mental health services since the age of 12, and had received Clinical Psychology input intermittently for a number of years. His last contact with a Psychologist had been 3 years previously. The treatment approach he described was cognitive behavioural. Current medication was fluoxetine.

RB described having some obsessional thoughts related to contamination. However, his predominant obsessions involved ideas of harming others. His most distressing thought was that he had killed someone. He said the thoughts were present for "100% of the day". Although he did not engage in any compulsive behaviours, RB did seek reassurance from other people and would try to distract himself from the thoughts. He prayed in relation to the thoughts, but the praying was not in a compulsive or ritualized manner. He would also avoid situations which made the thoughts more salient.

This case was particularly interesting because of the recent development of his symptoms. RB said that in the past, he had carried out a number of compulsive behaviours, such as checking, counting and repeating words silently. However, he described a significant change in his symptoms which he was able to date accurately to 3 months before our meeting. Previous to that time, he said that his obsessional thoughts had involved thoughts of him harming others. The thoughts had now changed to the repeated doubt that he had killed someone. He was able to pinpoint the development of the obsession to a specific

incident in which he had got into a friend's car and, he said "I put my foot under the ledge of the car and thought, I've killed someone". It was after this point that the obsessional thought had changed from fears that he would harm someone to thinking that he had already killed someone. What was particularly interesting was that after this time, he no longer carried out the compulsive behaviours. He explained that previously he had checked to "guard against" the possibility of him harming anyone. Since the content of the thought had changed to him already having killed someone, the purpose and therefore completion of the compulsions became redundant.

Problems with the distinction between obsessions and delusions was apparent in this case. This issue was discussed in general and in relation to this participant in the Discussion section of the current paper, and so will not be repeated in full here. The particular aspects of this case of note are firstly RB's level of recognition that the thoughts were 'senseless' (OCD criteria). He was able to accept that there may have been a possibility that the thoughts were not true and he did not believe the thoughts completely, but this was not absolute. Secondly, he was not able to fully appreciate the impossibility of having killed someone in the manner he had described. In terms of a continuum of strength of belief in the thought, RB was close to an absence of recognition of the senselessness of the thought, and the distinction between an obsessional and a psychotic thought was slight. His scores on the research questionnaire battery are shown below, together with the mean scores for the OCD group for comparison.

	MOCI R	**BDI**	**BAI**	**IBRO**	**PSI** socio	**PSI** auton	**PBI** care	**PBI** overprotection
RB	40	48	48	87	108	97	31 maternal 23 paternal	26 maternal 9 paternal
mean	81.09	19.7	20.4	68.96	108	91.35	23 maternal 20 paternal	13 maternal 11 paternal
st dev	32.7	10.7	13.7	13.1	19	12.5	8.9 maternal 8.1 paternal	8.4 maternal 8.0 paternal

It can be seen that compared to the mean, RB scored significantly lower on the MOCI - R. This was discussed more fully in the Discussion section. BDI and BAI scores show a high

level of clinical depression and anxiety. The sociotropy score was equal to the group mean and the autonomy score higher than the mean. His sociotropy score was higher than autonomy, which was the prediction for whole group analyses. IBRO score was higher than the mean, which for this individual would have been expected. Paternal care and overprotection scores were not dissimilar from mean scores. Maternal care and overprotection were higher than mean scores for the group. In this case therefore, high overprotection was found, even though low care was not a significant factor.

APPENDIX 2

This appendix provides brief case descriptions of the 3 participants whose scores on the Parental Bonding Instrument most clearly fell into the 'affectionless control' (high overprotection, low care) category. Participants were not asked directly about their experience of parenting during the clinical interview, so the outlines below do not discuss parenting in detail, but provide qualitative information about the clinical presentation of each participant.

Participant DB: maternal 'affectionless control'

(participant 7 in Table 2, Results section)

'DB' was a 31 year old woman who said she had always been 'perfectionistic' but dated the onset of obsessive compulsive symptoms to the age of 11. She experienced thoughts about contamination linked to ideas of harm coming to other people. She also described the need to keep things in a particular order around the home and followed a number of routines, for example when dressing. Overt compulsions were checking and cleaning. She engaged in one covert compulsion, of counting.

DB felt that the nature of the obsessions and compulsions had changed over the course of the disorder. For example, the purchase of her own flat had led to increased cleaning. At the time of the assessment, she was living away from her own home, which had reduced many of her symptoms. This was consistent with Rachman's (1993) description of increased symptoms in the person's own "psychological territory". When working as a secretary, the symptoms were increased and checking behaviour was predominant. Since she had stopped work, the behaviours had reduced and she would spend approximately half an hour a day either aware of the obsessions or acting on the compulsions. She felt generally that symptoms were present for 60 - 65% of the time.

DB had been on antidepressant medication (paroxetine) for 7 months and had been receiving cognitive therapy for just less than that time. Her scores on the measures are recorded below, with the mean scores of the OCD group for comparison.

	MOCI R	BDI	BAI	IBRO	PSI socio	PSI auton	PBI care	PBI overprotection
DB	115	12	9	54	93	128	**1 maternal** 14 paternal	**35 maternal** 3 paternal
mean	81.09	19.7	20.4	68.96	108	91.35	23 maternal 20 paternal	13 maternal 11 paternal
st dev	32.7	10.7	13.7	13.1	19	12.5	8.9 maternal 8.1 paternal	8.4 maternal 8.0 paternal

It can be seen from the table that she scored highly in terms of obsessive compulsive symptoms, and symptoms of anxiety and depression were mild. In this case, the IBRO score was relatively low. Autonomy was high and this is interesting in the light of the high maternal overprotection score, possibly indicating a 'rebound' to autonomous achievement (as described in the Discussion section).

Participant KF: Paternal 'Affectionless Control'

(participant 4 in Table 2, Results section)

'KF' was a 33 year old woman with a 5 year history of OCD. She was able to date the onset of problems to a foreign holiday when on her return she had begun to have thoughts about food, bones or pieces of glass becoming stuck in her throat. Obsessions also involved fears of contamination and thoughts of harm coming to others. Compulsions were checking and cleaning, although these had lessened considerably. She would often throw food out if she had thoughts of it being contaminated. She frequently asked for reassurance from her husband, and would often ask him to take baths due to her contamination fears.

KF was taking anti-depressant medication (fluoxetine). She had received cognitive behavioural therapy for a 2 year period, but was no longer receiving treatment. She felt that her compulsive symptoms had improved considerably, but she described the

obsessional thoughts as still present and they caused distress on a daily basis. Her scores on the measures are recorded below.

	MOCI R	**BDI**	**BAI**	**IBRO**	**PSI** socio	**PSI** auton	**PBI** care	**PBI** overprotection
KF	40	22	39	52	111	80	15 maternal **15 paternal**	12 maternal **31 paternal**
mean	81.09	19.7	20.4	68.96	108	91.35	23 maternal 20 paternal	13 maternal 11 paternal
st dev	32.7	10.7	13.7	13.1	19	12.5	8.9 maternal 8.1 paternal	8.4 maternal 8.0 paternal

Again, the MOCI - R score was relatively low, while depression and particularly anxiety symptoms were severe. Dysfunctional beliefs about obsessions were not strongly held, as measured by the IBRO. Sociotropy and autonomy scores were similar to or lower than the mean scores for the group. This participant suspected that her responses on the measures would have been considerably more 'dysfunctional' if she had completed them before she had received cognitive treatment for her problems. She recognised that her thinking style had changed as a result of therapy. Maternal bonding showed relatively low care compared to the group mean, but overprotection was not unusually high. Paternal care was lower than mean scores and overprotection considerably higher.

Participant SR: paternal 'affectionless control'

(participant 1 in Table 2, Results section)

'SR' was a 39 year old woman with a 17 year history of OCD. She had also received a diagnosis of manic depression at the age of 30, but said that she had had no episodes since the time the diagnosis was made. This participant's symptoms were described in the Discussion section, in relation to group heterogeneity and the continuum between obsessions and delusions.

SR reported one powerful obsession related to thoughts and images of having strangled somebody. These thoughts had begun 4 years previously. She responded to these thoughts

by checking and continually seeking reassurance. She described this thought or image as being present 100% of the time. She recognised that the thought was the product of her own mind and was irrational, but she continued to doubt whether or not it was true. She was sometimes able to distract herself from the thought, but was continually distressed by it. Checking behaviours, which had been present previous to this obsessional thought and still remained were related to thoughts of harm coming to others, and led to behaviours such as checking plugs and electrical appliances. SR would also repeat actions and sometimes compulsively repeat words. The compulsive behaviours took up approximately half an hour a day, but the main interference in functioning came from the distress due to the obsessional thoughts.

Medication prescribed was sertraline, lithium and thioridazine. She had had frequent admissions due to the obsessions and continued to contact psychiatric services for reassurance about the thoughts. She had received psychotherapy a year previously, but contact had been brief. Her questionnaire scores are shown below.

	MOCI R	**BDI**	**BAI**	**IBRO**	**PSI** socio	**PSI** auton	**PBI** care	**PBI** overprotection
SR	68	18	13	76	105	102	26 maternal **9 paternal**	12 maternal **27 paternal**
mean	81.09	19.7	20.4	68.96	108	91.35	23 maternal 20 paternal	13 maternal 11 paternal
st dev	32.7	10.7	13.7	13.1	19	12.5	8.9 maternal 8.1 paternal	8.4 maternal 8.0 paternal

The MOCI - R score was not particularly high, possibly due to the limited number of symptoms, rather than intensity. Mild to moderate depression and anxiety can be seen. The IBRO score was higher than the group mean, which would be expected in an individual with predominantly obsessional thoughts which were extremely intense. Sociotropy and autonomy scores are not notable. Neither maternal care or overprotection were significantly different from group means, but it can be seen that paternal care was much lower and overprotection higher than mean scores.

APPENDIX 3

COPIES OF MAIN QUESTIONNAIRES USED IN THE STUDY:

1. The Maudsley Obsessional Compulsive Inventory - Revised
2. The Inventory of Beliefs Related to Obsessions
3. The Personal Style Inventory
4. The Parental Bonding Instrument

MOCI-R

Please rate each statement by putting a circle around the number that best describes how much you agree with the statement, or how much it is true of you. Please answer every item, without spending too much time on any particular item.

How much is each of the following statements true of you?	**Not at all**	**A little**	**Some**	**Much**	**Very Much**
1. I find it very difficult to make even trivial decisions.	0	1	2	3	4
2. Touching the bottom of my shoes makes me very anxious.	0	1	2	3	4
3. For me, thinking about making an obscene gesture feels as bad as actually doing it.	0	1	2	3	4
4. I feel compelled to check letters over and over before mailing them.	0	1	2	3	4
5. I am often upset by unwanted urges to harm myself.	0	1	2	3	4
6. I feel compelled to follow a very strict routine when doing ordinary things.	0	1	2	3	4
7. If I think of a relative/friend being in a car accident, this increases the risk that he/she will actually have a car accident.	0	1	2	3	4
8. My living space is unacceptably full of clutter because I have great trouble throwing things away.	0	1	2	3	4
9. I feel extremely contaminated if I touch an animal.	0	1	2	3	4
10. I worry far too much that I might upset other people.	0	1	2	3	4
11. I repeatedly experience the same unwanted thought or image about an accident.	0	1	2	3	4
12. One of my major problems is that I collect excessive amounts of useless things.	0	1	2	3	4
13. I repeatedly experience upsetting and unacceptable thoughts of a religious nature.	0	1	2	3	4
14. I tend to get behind in my work because I repeat things over and over again.	0	1	2	3	4
15. I excessively check and recheck things like taps and switches after turning them off.	0	1	2	3	4
16. I spend far too much time washing my hands.	0	1	2	3	4

How much is each of the following statements true of you?	Not at all	A little	Some	Much	Very Much
17. I try to put off making decisions because I'm so frightened of making a mistake.	0	1	2	3	4
18. I am often upset by my unwanted thoughts of using a sharp weapon.	0	1	2	3	4
19. I almost always count when doing a routine task.	0	1	2	3	4
20. If I think of a relative/friend falling ill this increases the risk that he/she will actually fall ill.	0	1	2	3	4
21. I am afraid to use even well-kept public toilets.	0	1	2	3	4
22. I repeatedly experience the same upsetting thought or image about death.	0	1	2	3	4
23. I feel upset if my furniture, ornaments, or other objects are not always in exactly the same position.	0	1	2	3	4
24. Having violent thoughts feels as unacceptable to me as violent acts.	0	1	2	3	4
25. I find that almost every day I am upset by unpleasant thoughts that come into my mind against my will.	0	1	2	3	4
26. I take an excessively long time to dress in the morning.	0	1	2	3	4
27. I am often upset by unwanted thoughts or images of sexual acts.	0	1	2	3	4
28. I often have trouble getting things done because I try to do everything exactly right.	0	1	2	3	4
29. I am frightened of having any contact with bodily secretions (blood, urine, sweat, etc.).	0	1	2	3	4
30. I often experience upsetting and unwanted thoughts about illness.	0	1	2	3	4
31. I feel strongly compelled to keep things like lots of empty boxes and newspapers just in case I need them later on.	0	1	2	3	4
32. I often feel compelled to memorize trivial things (e.g., licence plate numbers, instructions on labels).	0	1	2	3	4
33. My mean thoughts wishing a person harm can increase the chance that something harmful will actually happen to him or her.	0	1	2	3	4

How much is each of the following statements true of you?	Not at all	A little	Some	Much	Very Much
34. I often feel strong unwanted urges to drive or run into oncoming traffic.	0	1	2	3	4
35. I repeatedly check that my stove is turned off, even though I resist the urge to do so.	0	1	2	3	4
36. Having a blasphemous thought feels as sinful to me as a sacrilegious act.	0	1	2	3	4
37. I feel very dirty after touching money.	0	1	2	3	4
38. After I have decided something, I usually worry about my decision for a long time.	0	1	2	3	4
39. I often experience upsetting and unwanted thoughts about losing control.	0	1	2	3	4
40. I am often very late because I can't get through ordinary tasks on time.	0	1	2	3	4
41. I find it very difficult to touch garbage or garbage bins.	0	1	2	3	4
42. I spend a lot of time every day checking things over and over again.	0	1	2	3	4
43. I avoid using public telephones because of possible contamination.	0	1	2	3	4
44. I feel compelled to be absolutely perfect.	0	1	2	3	4
45. Having bad thoughts makes me feel like a terrible person.	0	1	2	3	4
46. One of my major problems is repeated checking.	0	1	2	3	4
47. I repeatedly experience upsetting and unwanted immoral thoughts.	0	1	2	3	4
48. I find it almost impossible to decide what to keep and what to throw away.	0	1	2	3	4
49. I am excessively concerned about germs and disease.	0	1	2	3	4
50. I am strongly compelled to count things.	0	1	2	3	4
51. I become very anxious when I have to make even a minor decision.	0	1	2	3	4

How much is each of the following statements true of you?	Not at all	A little	Some	Much	Very Much
52. For me, thinking bad things feels as bad as actually doing bad things.	0	1	2	3	4
53. I frequently have to check things (e.g., gas or water taps, doors, etc.) several times.	0	1	2	3	4
54. One of my major problems is that I am excessively concerned about cleanliness.	0	1	2	3	4
55. I am often very upset by my unwanted impulses to harm other people.	0	1	2	3	4
56. I spend far too long getting ready to leave home each day.	0	1	2	3	4
57. I repeatedly check that my doors or windows are locked, even though I resist the urge to do so.	0	1	2	3	4
58. If I have a thought or image of a bad thing happening to people I care about, it makes me feel that I have put them at risk.	0	1	2	3	4
59. One of my major problems is that I pay far too much attention to detail.	0	1	2	3	4
60. For me, thinking unkindly about a friend feels as disloyal as doing an unkind act.	0	1	2	3	4
61. I am often upset by unwanted thoughts or images of blurting out obscenities or insults in public.	0	1	2	3	4
62. Touching the floor frightens me.	0	1	2	3	4

Rachman, Thordarson, Radomsky, & Shafran, June 1996

BELIEF INVENTORY (Freeston et al 1993)

The statements below describe the attitudes people may have toward their own thoughts. Please mark the space next to each statement according to how strongly you believe that it is true or false for you. Please mark every one.

6: I believe **strongly** that this statement is **true**.
5: I believe that this statement is **true.**
4: I believe that this statement is **probably true**, at least more true than false.
3: I believe that this statement is **probably false**, at least more false than true.
2: I believe that this statement is **false**.
1: I believe **strongly** that this statement is **false**.

— 1.Thoughts are in themselves harmless.

— 2.Uncertainty should not disturb.

— 3.It is unforgivable to be responsible for an error that makes oneself look bad.

— 4.Guilt is an appropriate response to unacceptable thoughts.

— 5.Danger is always a terrible thing.

— 6.If one believes that there is even the slightest possibility of having caused harm, then one must act so as not to be blamed.

— 7.One should avoid at any price any activity that runs the possibility of being held personally responsible for a loss.

— 8.Loss is always a terrible thing.

— 9.One should feel guilty if thoughts are ot controlled.

— 10.Not being able to control thoughts will harm no one.

— 11.Enduring unpleasant thoughts without doing anything is dangerous for the person who has them.

— 12.Generally speaking, it is preferable to carry responsibility alone.

— 13.Punishing oneself for errors that may have been made will enable future errors to be avoided.

— 14.Eduring unpleasant thoughts without doing anything can lead to their disappearance.

— 15.A responsible person does not let unpleasant thought occur without trying to control them.

— 16.The loss of someone dear is always unbearable.

— 17.One is to blame is something happens that one has thought about.

— 18.To be uncertain about haaving caused possible harm is unbearable even if the possibility is very unlikely.

— 19.Uncertainty is a source for concern.

— 20.One should feel very guilty if there is the slightest possibility that one is responsible for an unfortunate event.

Personal Style Inventory

Here are a number of statements about personal characteristics. Please read each carefully, and indicate whether you agree or disagree, and to what extent, by circling a number.

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
1.	I often put other people's needs before my own.	1	2	3	4	5	6
2.	I tend to keep other people at a distance.	1	2	3	4	5	6
3.	I find it difficult to be separated from people I love.	1	2	3	4	5	6
4.	I am easily bothered by other people making demands of me.	1	2	3	4	5	6
5.	I am very sensitive to the effects I have on the feelings of other people.	1	2	3	4	5	6
6.	I don't like relying on others for help.	1	2	3	4	5	6
7.	I am very sensitive to criticism by others.	1	2	3	4	5	6
8.	It bothers me when I feel that I am only average and ordinary.	1	2	3	4	5	6
9.	I worry a lot about hurting or offending other people.	1	2	3	4	5	6
10.	When I'm feeling blue, I don't like to be offered sympathy.	1	2	3	4	5	6
11.	It is hard for me to break off a relationship even if it is making me unhappy.	1	2	3	4	5	6
12.	In relationships, people are often too demanding of one another.	1	2	3	4	5	6
13.	I am easily persuaded by others.	1	2	3	4	5	6

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
14.	I usually view my performance as either a complete success or a complete failure.	1	2	3	4	5	6
15.	I try to please other people too much.	1	2	3	4	5	6
16.	I don't like people to invade my privacy.	1	2	3	4	5	6
17.	I find it difficult if I have to be alone all day.	1	2	3	4	5	6
18.	It is hard for me to take instructions from people who have authority over me.	1	2	3	4	5	6
19.	I often feel responsible for solving other people's problems.	1	2	3	4	5	6
20.	I often handle big decisions without telling anyone else about them.	1	2	3	4	5	6
21.	It is very hard for me to get over the feeling of loss when a relationship has ended.	1	2	3	4	5	6
22.	It is hard for me to have someone dependent on me.	1	2	3	4	5	6
23.	It is very important to me to be liked or admired by others.	1	2	3	4	5	6
24.	I feel badly about myself when I am not actively accomplishing things.	1	2	3	4	5	6
25.	I feel I have to be nice to other people.	1	2	3	4	5	6
26.	It is hard for me to express admiration or affection.	1	2	3	4	5	6
27.	I like to be certain that there is somebody close I can contact in case something unpleasant happens to me.	1	2	3	6	5	6

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
28.	It is difficult for me to make a long-term commitment to a relationship.	1	2	3	4	5	6
29.	I am too apologetic to other people.	1	2	3	4	5	6
30.	It is hard for me to open up and talk about my feelings and other personal things.	1	2	3	4	5	6
31.	I am very concerned with how people react to me.	1	2	3	4	5	6
32.	I have a hard time forgiving myself when I feel I haven't worked up to my potential.	1	2	3	4	5	6
33.	I get very uncomfortable when I'm not sure whether or not someone likes me.	1	2	3	6	5	6
34.	When making a big decision, I usually feel that advice from others is intrusive.	1	2	3	4	5	6
35.	It is hard for me to say "no" to other people's requests.	1	2	3	4	5	6
36.	I resent it when people try to direct my behavior or activities.	1	2	3	4	5	6
37.	I become upset when something happens to me and there's nobody around to talk to.	1	2	3	4	5	6
38.	Personal questions from others usually feel like an invasion of my privacy.	1	2	3	4	5	6
39.	I am most comfortable when I know my behavior is what others expect of me.	1	2	3	4	5	6
40.	I am very upset when other people or circumstances interfere with my plans.	1	2	3	4	5	6

		Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
41.	I often let people take advantage of me.	1	2	3	4	5	6
42.	I rarely trust the advice of others when making a big decision.	1	2	3	6	5	6
43.	I become very upset when a friend breaks a date or forgets to call me as planned.	1	2	3	4	5	6
44.	I become upset more than most people I know when limits are placed on my personal independence and freedom.	1	2	3	4	5	6
45.	I judge myself based on how I think others feel about me.	1	2	3	4	5	6
46.	I become upset when others try to influence my thinking on a problem.	1	2	3	4	5	6
47.	It is hard for me to let people know when I am angry with them.	1	2	3	4	5	6
48.	I feel controlled when others have a say in my plans.	1	2	3	4	5	6

Thank you for completing this questionnaire.

THE PARENTAL BONDING INSTRUMENT

This questionnaire lists various attitudes and behaviours of parents. As you remember your **MOTHER** in your first 16 years would you place a tick in the most appropriate brackets next to each question.

	very like	moderately like	moderately unlike	very unlike
1. Spoke to me with a warm and friendly voice	( )	( )	( )	( )
2. Did not help me as much as I needed	( )	( )	( )	( )
3. Let me do those things I liked doing	( )	( )	( )	( )
4. Seemed emotionally cold to me	( )	( )	( )	( )
5. Appeared to understand my problems and worries	( )	( )	( )	( )
6. Was affectionate to me	( )	( )	( )	( )
7. Liked me to make my own decisions	( )	( )	( )	( )
8. Did not want me to grow up	( )	( )	( )	( )
9 Tried to control everything I did	( )	( )	( )	( )
10 Invaded my privacy	( )	( )	( )	( )
11 Enjoyed talking things over with me	( )	( )	( )	( )
12 Frequently smiled at me	( )	( )	( )	( )
13 Tended to baby me	( )	( )	( )	( )
14 Did not seem to understand what I needed or wanted	( )	( )	( )	( )
15 Let me decide things for myself	( )	( )	( )	( )
16 Made me feel I wasn't wanted	( )	( )	( )	( )
17 Could make me feel better when I was upset	( )	( )	( )	( )
18 Did not talk with me very much	( )	( )	( )	( )
19 Tried to make me dependent on her	( )	( )	( )	( )
20 Felt I could not look after myself unless she was around	( )	( )	( )	( )
21 Gave me as much freedom as I wanted	( )	( )	( )	( )
22 Let me go out as often as I wanted	( )	( )	( )	( )
23 Was overprotective of me	( )	( )	( )	( )
24 Did not praise me	( )	( )	( )	( )
25 Let me dress in any way I pleased	( )	( )	( )	( )

THE PARENTAL BONDING INSTRUMENT

This questionnaire lists various attitudes and behaviours of parents. As you remember your **FATHER** in your first 16 years would you place a tick in the most appropriate brackets next to each question.

	very like	moderately like	moderately unlike	very unlike
1. Spoke to me with a warm and friendly voice	( )	( )	( )	( )
2. Did not help me as much as I needed	( )	( )	( )	( )
3. Let me do those things I liked doing	( )	( )	( )	( )
4. Seemed emotionally cold to me	( )	( )	( )	( )
5. Appeared to understand my problems and worries	( )	( )	( )	( )
6. Was affectionate to me	( )	( )	( )	( )
7. Liked me to make my own decisions	( )	( )	( )	( )
8. Did not want me to grow up	( )	( )	( )	( )
9. Tried to control everything I did	( )	( )	( )	( )
10. Invaded my privacy	( )	( )	( )	( )
11. Enjoyed talking things over with me	( )	( )	( )	( )
12. Frequently smiled at me	( )	( )	( )	( )
13. Tended to baby me	( )	( )	( )	( )
14. Did not seem to understand what I needed or wanted	( )	( )	( )	( )
15. Let me decide things for myself	( )	( )	( )	( )
16. Made me feel I wasn't wanted	( )	( )	( )	( )
17. Could make me feel better when I was upset	( )	( )	( )	( )
18. Did not talk with me very much	( )	( )	( )	( )
19. Tried to make me dependent on him	( )	( )	( )	( )
20. Felt I could not look after myself unless he was around	( )	( )	( )	( )
21. Gave me as much freedom as I wanted	( )	( )	( )	( )
22. Let me go out as often as I wanted	( )	( )	( )	( )
23. Was overprotective of me	( )	( )	( )	( )
24. Did not praise me	( )	( )	( )	( )
25. Let me dress in any way I pleased	( )	( )	( )	( )